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FEBRUARY 1969

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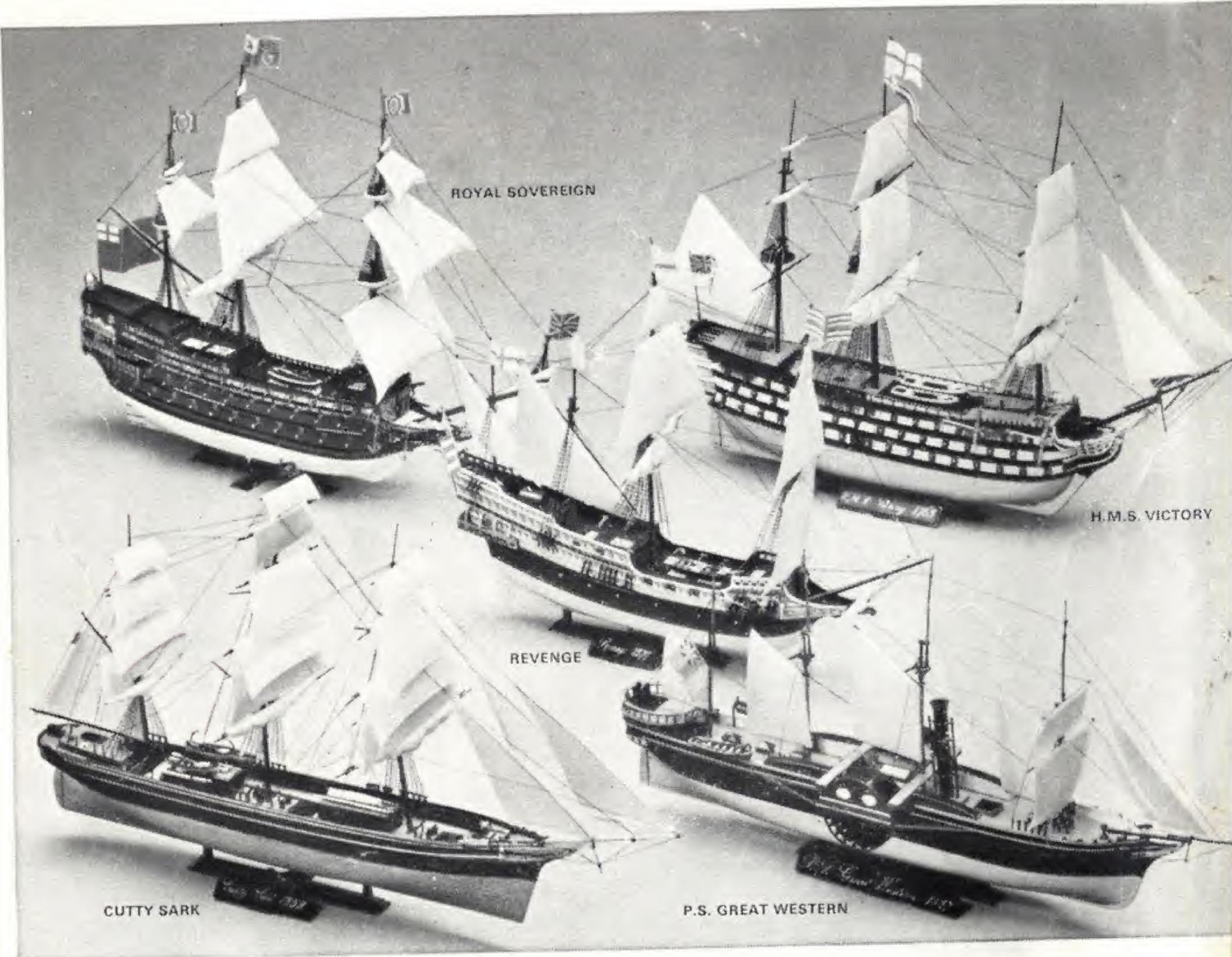
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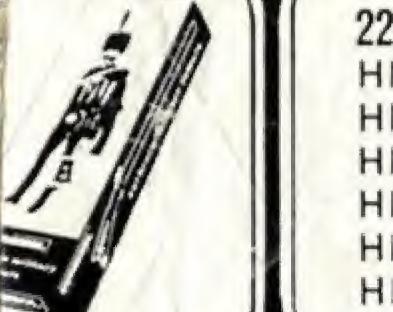
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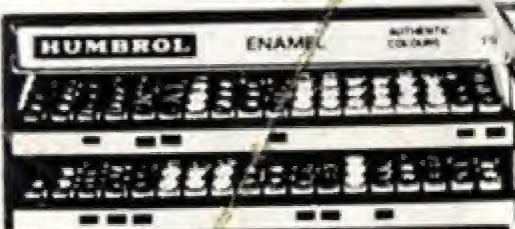


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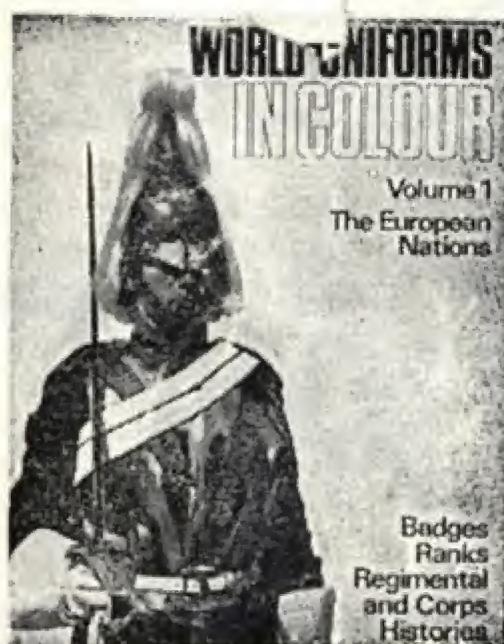
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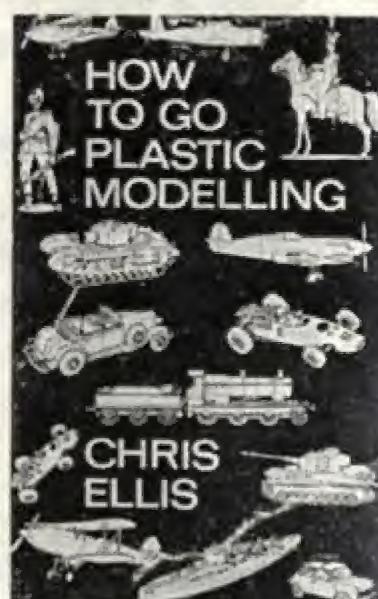
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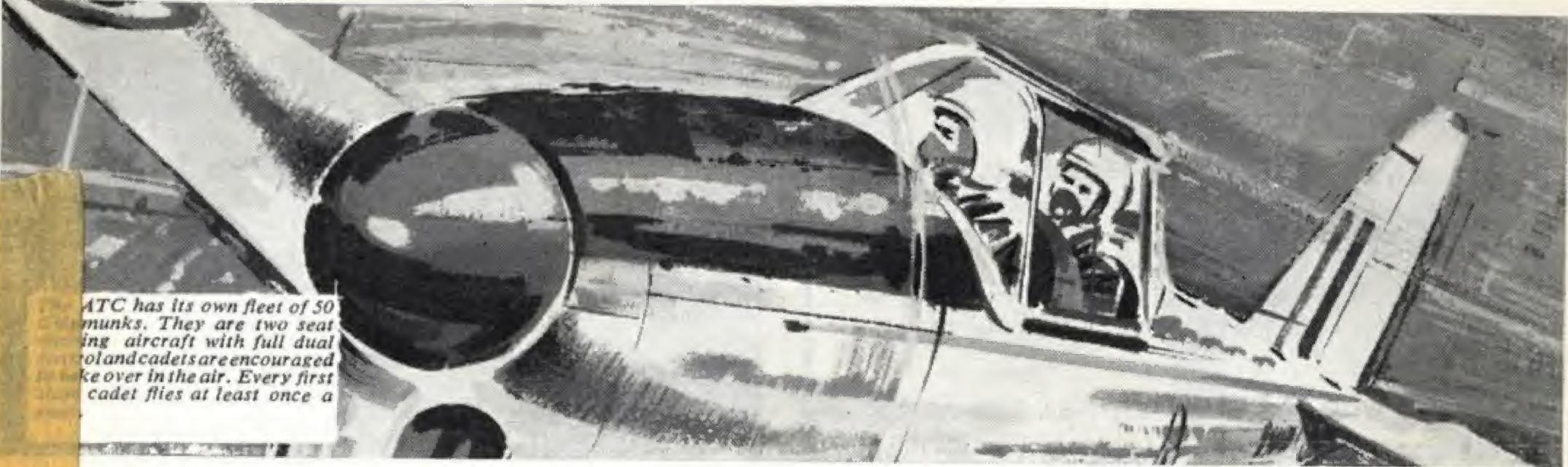
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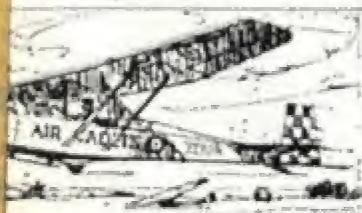
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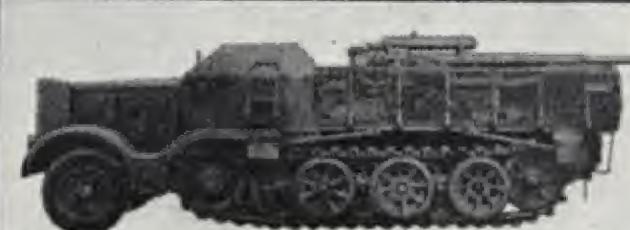
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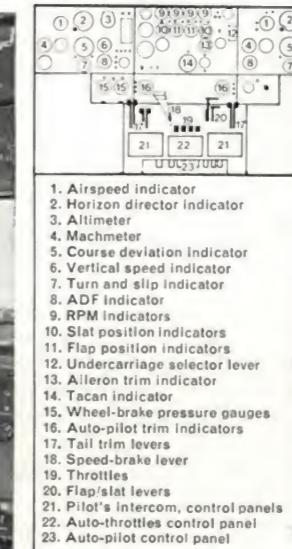
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AIRFIX magazine

AIRFIX
magazine
FOR PLASTIC MODELLERS

February 1969

Volume 10 No 6

Editor Chris Ellis

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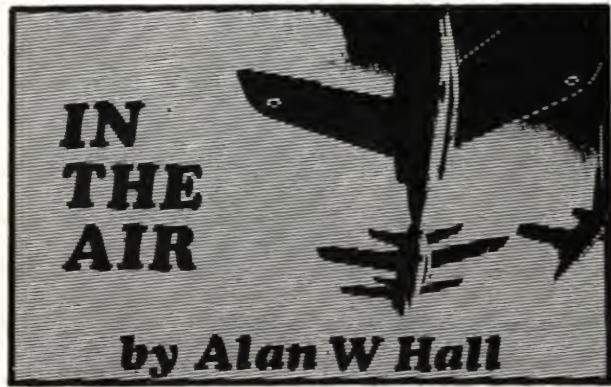
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ONE of the few World War 2 aces still on active duty in the United States Air Force is Colonel John W. Keeler. When he presented the prizes to the winners of the National IPMS modelling competition in December, I had the chance of a few words with him and later went to his office at 3rd Air Force Headquarters, Ruislip.

Colonel Keeler was with the famous 56th Fighter Group, 8th Air Force, flying Thunderbolts from Boxed in March, 1944, but before that he had served with the 176th Infantry Regiment after joining up in June, 1941. He started pilot training in October, 1942. After instructing on single engined fighters he was posted to England just before the 56th moved from Halesworth to Boxed at the time that Colonel Dave Schilling was in command.

First Lieutenant Keeler joined the 63rd Fighter Squadron and achieved six victories during the year he was on active duty. These included two Bf 109s, one Fw 190, one Me 262 and two aircraft, either Bf 110s or 410s, on the ground. The latter were 'clobbered' during a *Rodeo* operation ahead of



the main bomber stream at a small airfield at Eggebeck on the Danish/German border.

I asked him about his experiences in shooting down the Me 262 as few of these jets were caught by conventional piston engined fighters during the short time they saw service with the Luftwaffe. He said that all USAF pilots had great respect for the jets. His first encounter with one was early in 1945. The 56th were flying high cover to the bombers when one of the Group, Jim Naylor, spotted the 262 below them. They dived intending to catch the Luftwaffe pilots unawares but were seen before they could get close enough. To everybody's surprise, the jets hurtled upward at a speed faster than the Thunderbolts could dive, and that was saying something! The 'Jug' was always reckoned to be the fastest thing flying when it came to this sort of manoeuvre because its weight literally caused it to fall out of the sky at a great rate of knots. The 262 disappeared and the pilots' respect for it increased accordingly.

The second encounter was shortly afterwards and this time Keeler made no mistake about hitting the target. The Group was on another *Rodeo* operation, this time to Berlin. The *Below: N65780, the much modified B-25 Mitchell which was used as camera aircraft for the new 'Battle of Britain' film. Michael Bowyer, who took this picture, describes its colour scheme in his article on page 265.*



Colonel John W. Keeler, USAF.

Thunderbolts were in the Muritz Lake area approaching Berlin from the North. Slightly ahead of schedule, they did a 360 degree turn during which two Me 262s were spotted 1,000 feet below.

The opponents saw each other at the same time and the 'Jugs' were caught in a bad tactical position. Someone screamed 'Break' and the whole formation scattered. Keeler found himself some way behind one of the enemy jets which started to do a gentle turn to the right. Hardly believing his eyes, the USAAF pilot simply cut off the corner and closed up behind the 262, thinking all the time that it was acting as bait for the other one to come up behind and knock his own aircraft out of the sky.

'I kept one eye on my rear,' said Keeler, hardly daring to hope that the 262 pilot would be such an idiot as to present such a beautiful target. 'At 200 yards I opened fire and saw my tracers going into his wings,' he continued. The 262 blew up and went down in a ball of flame. Only about 20 of the German jets were shot down in combat during the war and many of these were caught at the vulnerable time of take-off or landing.

Rare 'Jug'

Colonel Keeler recalled that the 56th Fighter Group was the only one to be supplied with the P-47M Thunderbolt. A total of 130 of these aircraft were built and they had automatic water injection for the 2,800 hp engine. This provided emergency power at altitude and for take-off.

Unfortunately, all of the aircraft supplied to the Group arrived by sea and were not properly cocooned for the voyage. There were many unexplained accidents, aircraft failed to start and when they did, the engine cut mysteriously on take-off, causing a number of fatal accidents. So serious did the matter become that it was thought probable that the 56th would convert to Mustangs. The trouble was eventually traced to salt water corrosion in the pistons and once the problems had been overcome, the P-47M was regarded with affection by the pilots.

Colonel Keeler compared the advance of flying technology

today with the somewhat primitive methods during World War 2. 'We knew little about navigation,' he commented, 'as the fighters just stayed with the bombers and you knew that England could be reached by flying in a westerly direction from the Continent.' Air traffic control was a problem and he often wondered why there were so few mid-air collisions with so many aircraft of different types in the air at the same time. Airfields were packed close together in East Anglia and it was a popular belief that if you could get your aircraft to a height of 1,000 feet and had an engine failure, you were bound to find an airfield on which you could land safely without risking a forced landing on unprepared ground.

Asked about some of the more amusing incidents during his stay in England, Colonel Keeler recounted the story of 'Cigarette altitude'. Apparently most pilots returning from operations over Germany lit cigarettes on the way back when they reached a height of 15,000 feet, the safe altitude at which one could take off one's oxygen mask.

On this particular occasion, Keeler's wingman suddenly inverted his aircraft and flew upside down for a few minutes before returning to normal attitude. It was recognised that the tight combat formation became very ragged at 'Cigarette altitude' as the pilots took their hands off the controls to remove their oxygen masks and get the fags out! This, however, was something new. Keeler was even more astounded when his wingman did it again some ten minutes later. Radio silence forbade any air-to-air conversations but on landing the wingman was asked why he had done this rather amazing trick.

The explanation was simple. The pilot in question was not very tall. Like all the others, he had fumbled for his cigarettes at 15,000 feet and dropped them all over the cockpit floor. Being short, he couldn't reach to pick them up and the only way he could get a drag was to fly upside down and catch one of the cigarettes when they floated upwards!

In Korea

Colonel Keeler left the service after the war and became an editor of two weekly newspapers in his home State of Pennsylvania. He was still, however, on the reserve and with the advent of the Korean war was recalled to the famous 'Black Panther' squadron, flying F-80 Shooting Stars in fighter-bomber missions against the Communists.

'I only had one crack at the enemy in the air during the 166 missions I flew in Korea,' he said. This was when the 35th Squadron was bounced by MiG 15s and Colonel Keeler got on the tail of one of them. Although he chased the aircraft back over the Yalu River and hit it several times, he was only given a 'probable' as the aircraft was not seen to go down. When he left it, however, it was smoking badly and couldn't have been much use to the Chinese even if it did get back to base.

Below: With modellers in mind, Michael Bowyer photographed this close-up of the bomb-aimer's nose position on a CASA 2-111 taking part in 'The Battle of Britain' film as an 'He III'.



Above, top to bottom: Navy mixture. An A4G Skyhawk and S2F Tracker of the Royal Australian Navy carried out practice 'roller' landings on the deck of HMS Hermes when she was in Australian waters recently. With the exception of Australian markings, colour scheme is similar to US Navy aircraft. Reader Adrian Balch took the pictures of the last airworthy Sea Hawk F(GA)6, XE339, and Scimitar XD235:032, on a sortie from Hurn on June 5 last year. The Sea Hawk is all black. Both machines were operated from Hurn by the Airwork-managed FRU. The Sea Hawk has since 'retired'.

He returned to the States in 1952, the most decorated man in his squadron and then spent four years ferrying jets across the Atlantic to NATO countries.

The Third War

After instructing on Super Sabres and a period at Tactical Air Command Headquarters in the States, Colonel Keeler went to the USAF Academy, Colorado, where he took up his first appointment in Public Relations.

He then, like so many other experienced USAF pilots, went to Vietnam for a year on combat duty. Flying both Skyraiders and F-100s, he also worked on General Westmoreland's staff as press briefing officer for the air war. His daily press conferences to the 400 war correspondents in Vietnam prompted the Associated Press to call him 'the most quoted man on earth'.

Returning to England in 1966, Colonel Keeler took up his present appointment as Director of Information for the US 3rd Air Force in the United Kingdom. He lives in Wembley and during his service has been awarded the Silver Star Medal, Distinguished Flying Cross with two Oak Leaf Clusters, the Bronze Star and the Air Medal with 12 Oak Leaf Clusters. He has 282 combat missions logged in three wars and 5,700 flying hours to his credit. If this were not enough, he still flies jet aircraft whenever he has the opportunity. You can't keep a good pilot down!

NEWS FROM AIRFIX

The world's greatest value in construction kits

RMS 'Queen Elizabeth 2'

Handley Page 0/400

Petlyakov Pe-2

Thousands of *Queen Elizabeth 2s* were already in commission when the new Cunarder hit the headlines on her maiden voyage, because Airfix had added a scale model of the new 65,000 ton liner to a range that already includes the first *Queen Elizabeth*, *France*, *Mauretania* and *Canberra*. All these models are built to the same scale—50 ft to 1 inch (1:600).

Employing ultra-modern design and construction techniques, Britain has built the first great passenger liner capable



of giving a fast North Atlantic scheduled service and also providing superlative trans-world luxury cruising facilities. Although smaller than her predecessor, the *Queen Elizabeth 2* can carry the same number of passengers at the same cruising speed with half the fuel consumption—a combination of economics and engineering that makes her the most advanced passenger liner in the world.

The Airfix kit contains nearly 150 pieces and when assembled produces a model 19½ inches long. The boat decks are complete with six motor launches, two small and four large motor boats and eight lifeboats. Rising above these decks is the distinctive funnel complete with its plenum air vent. Movable crane towers and jibs and a telescopic mast are features of the fore-deck. Two cradles to support the finished model are included with the kit.

This is the only Cunard-authorised kit of the *Queen Elizabeth 2*. It is released in the Airfix Famous Ships range, Series 6, and costs 12s 11d.



APRIL, 1919, saw the introduction of Britain's first big airliner—the converted Handley Page 0/400 bomber which inaugurated the London-Paris civil air service.

In 1959—British civil aviation's true Golden Jubilee year—it is appropriate that Airfix introduces a 1:72 scale model of the Handley Page 0/400, Britain's first strategic heavy bomber and grand-sire of the well-known HP 42 Heracles airliner (already an Airfix best seller).

The 0/400, an ungainly-looking twin-engined biplane with an impressive amount of dihedral, makes a fascinating 167-part, true scale kit. It includes markings for an aircraft of 207 Squadron—pioneers of long-range night bombing raids.

The finely detailed parts in the kit include a tailskid trolley, standard load of sixteen 112 lb bombs (and the alternative externally-carried 1,650 lb bomb used in the latter months of the 1914-1918 war) and armament for three firing positions—although the ventral hatch can be modelled closed.

Wing roundels and fin flashes for pre- and post-1918 versions of the 0/400 are included in this Airfix Series 5 kit, which costs 9s 11d.

THE latest addition to the Series 2 range of fully detailed, 1:72 scale aircraft kits by Airfix is modelled on a machine seen by few Western eyes, although it played an important role during the 1939-45 war on the Eastern Front—the Vladimir Petlyakov-designed Pe-2 low altitude dive-bomber.

At the end of the war, during which the Pe-2 had also been used for conventional bombing raids, reconnaissance sorties and to fulfil the hazardous role of ground support attacker, the USSR supplied a number of these aircraft to the new air forces of Poland and Czechoslovakia.

The 90 parts of this kit are numbered for easy recognition and reference to the two 'exploded' drawings provided with the assembly instructions. Painting instructions and transfers for the Pe-2 in service with both satellite air forces and the wartime Red Air Force are provided with the kit, which costs 3s 8d.



NEW BOOKS

REVIEWED FOR MODELLERS

In the slot

SLOT CAR RACING, by Phil Drackett. Published by Souvenir Press, 95 Mortimer Street, London, W1, and The Ryerson Press, Toronto 2, Canada. Price 21s.

THIS is a smallish book, having just over 100 pages of large print and 20 pages of well-produced black-and-white handout photographs. Phil Drackett himself is head of the Royal Automobile Club's press department, and this tends to show in his text. This is basically an appraisal of the many proprietary slot-racing sets on the market but a chapter on building your own does seem quite handy, with general notes on assembling bits and pieces which can be bought over the counter. Many references are made to other publications, including the now-defunct *Miniature Auto*, and generally *Slot Car Racing* seems rather a shallow handbook, glossing over many of the detail points one would expect it to cover.

But in fairness, it should be said that this is fairly obviously aimed at the absolute beginner in the hobby, sport or whatever you like to call it, and in this context it strikes a happy balance between uncomplicated intricacy and informative generalisations—if you see what we mean. It is not expensive at 1 guinea, but is not essential reading. Take a look at a copy, and see if you have a need for it—that's the best recommendation we can make.

Viscount manual

HANDBOOK OF THE VICKERS VISCOUNT, by P. St John Turner. Published by Ian Allan Ltd, Terminal House, Shepperton, Middx. Price 25s.

THE introduction of the Viscount into BEA service in the fifties was a milestone in aviation history as it was the first propeller turbine aircraft to be used on the world's air routes, and as such captured much of the interest of the travelling public who were more used to the noise and vibration of the Viscount's piston-engined contemporaries. Not only in this country but in the mecca of air transport, the United States, the Viscount succeeded and although there was rather a nasty business when Capitol were unable to meet their commitments, the aircraft has been extremely popular in the States and continues to give good service today.

This book details all of the history of the Viscount in a compact manner with numerous excellent photographs. The story is told simply without recourse to long and complicated lists of detail and airline usage. This information is, however, contained in appendices. The book will be of great value to the enthusiasts as it is a work of reference apart from being an interesting story.

Wartime merchantmen

BRITISH STANDARD SHIPS OF WORLD WAR I, by W. H. Mitchell and L. A. Sawyer. Published by The Journal of Commerce and Shipping Telegraph Ltd, 19 James Street, Liverpool L2 7PE. Price 30s.

THIS is the third volume of a series of reference books which sets out to list, describe, and illustrate all the 'standard' types of ships built for merchant use in the World Wars. The first two, which we reviewed more than a year ago, covered World War 2 types. This new volume covers the 1914-18 period and includes both ships built in British yards and ships built in USA, Canada, and Japan, for British use. The first prefabricated ships date from this period, as do such oddities as concrete and very large wooden steamers built in Canada.

All vessels are described and listed by class and builder with the usual tabulated details and a brief summary of their eventual

fate. Many, of course, lasted until the second world war, or even later, when they were joined by the next generation of 'standard' vessels described in the previous two volumes. This is a very well produced book with excellent line drawings and pictures and, like its companion volumes, fills an enormous gap in an hitherto almost neglected subject—warships of World War 1 are covered in several books but not the merchantmen; a 'must' for the keen shipping enthusiast's library.

Warship drawings

GERMAN WARSHIPS OF THE SECOND WORLD WAR: a folio of ten sets of scale drawings. Published by W. R. Blackmore, Conway Chambers, 130 Lordship Lane, London SE22. Price 18s plus postage.

NOT strictly a book, though it comes in book format, this is a collection of nicely produced scale drawings of famous German warships which includes plans, elevations, and sections. Vessels covered are *Admiral Hipper*, *Köln*, *Emden*, *Prinz Eugen*, *Gneisenau*, *Nürnberg*, *Admiral Scheer*, *Tirpitz*, *Luetzow*, and *Scharnhorst*. Due to the varying sizes of these vessels, the drawings are not produced to a constant scale, but most are to a little over 1:600 scale, while some are just under. This is less inconvenient than might at first be thought, since each drawing has a very clear scale of feet running between each plan and elevation, plus a vertical scale of feet at the side of each elevation. There is no text, just the ten sets of drawings which will be of great help to ship modellers—including those wishing to detail up plastic models.

RAF bombers

ROYAL AIR FORCE BOMBERS OF WORLD WAR 2: VOLUME 2, by P. J. R. Moyes. Published by Hylton Lacey, Roughwood Croft, Nightingales Lane, Chalfont St Giles, Bucks. Price 30s.

UNIFORM with the Luftwaffe books we reviewed last month, this volume tells the story of the B-17C in RAF service, the Blenheim, Hampden, Halifax, Ventura in RAF service, and the Wellesley. In this respect it is pleasant to see coverage of less well-known types which have not been given 'Profile' type treatment before. Descriptive text, a good selection of pictures, and superb five-view colour drawings of representative machines of each type by James Goulding, go to make up a book which provides plenty of useful reference material for anyone modelling the aircraft included. Our review copy was loaned by Jones Bros of Chiswick. Orders by post should add 2s for postage and packing.

Atlantic engines

BRITISH ATLANTIC LOCOMOTIVES, by Cecil J. Allen. Published by Ian Allan Ltd, Terminal House, Shepperton, Middx. Price 35s.

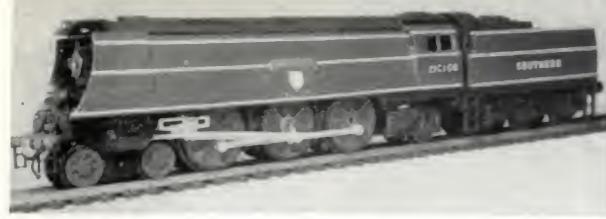
MORE than 300 Atlantic locomotives, that is engines with the 4-4-2 wheel arrangement, were built by seven British railway companies between 1898 and 1920. All are covered in this book which describes the evolution of each design, their subsequent variations in service, performance, merits and failings. The 164 pages include 70 photographs, tables of leading dimensions, numbers and building dates. A handy reference book for keen locomotive enthusiasts, though withdrawal dates are omitted.

Irish rail

IRISH RAILWAY ALBUM, by C. P. Boocock. Published by Ian Allan Ltd, Terminal House, Shepperton, Middx. Price 30s.

A NOSTALGIC collection of some 200 photographs, this book faithfully recaptures that splendid period during the 'fifties when Ireland had so much to offer the railway enthusiast. The selection of subjects cannot be faulted but it is a pity that overprinting of the blocks appears to have obliterated much of the detail. On page 109, for example, only an inky blackness can be seen where, according to the caption, the coupling rods should be clearly visible. We are, however, pleased to see another Ian Allan album with numbered pages.

IN our review of *Janes Fighting Ships*, 1914, last month we stated that the price went up from January 1, 1969. In fact, we should have said July 1. Until then it is £6 6s.

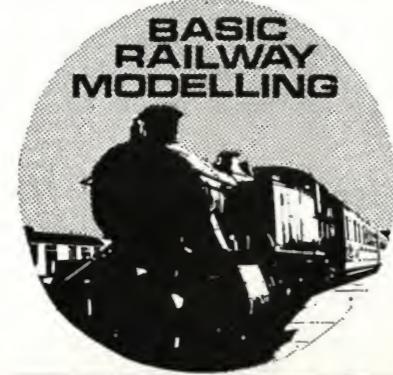


Above: The Airfix 'Battle of Britain' locomotive finished as a 'West Country', Padstow, with Eames nameplates, and converted back to original condition with flat fronted cab and short smoke deflectors, as described in this article. It is shown on the Airfix chassis, though the body can be fitted to the Tri-ang motorised chassis as described last month.

THE locomotive Biggin Hill, subject of the recently introduced Airfix locomotive kit, was one of 70 light Pacifics built by the Southern Railway at Brighton works immediately prior to nationalisation. They were numbered 21C101-170, the 21C part of the number indicating the wheel arrangement; 2 for the two axles of the leading bogie, 1 for the single axle of the trailing truck and C being the third letter of the alphabet indicating three coupled axles. Though the locomotives are referred to as the 'West Country' and 'Battle of Britain' classes, the distinction is really in name only.

Whilst they were being built one or two detail alterations were made to the design affecting the outward appearance of the locomotives and many of these changes were afterwards made to the first production locomotives to bring them all into line. The two most noticeable external changes (apart, of course, from the major rebuilding begun in 1957 which, among other things, removed the air-smooth casing) affected the length of the smoke deflector plates and the shape of the cab. These changes were made to both the 'West Country' and the 'Battle of Britain' classes and it is wrong to think that the differences in these features represent the distinction between the classes. They do not.

The first locomotive, 21C101 Exeter was completed at Brighton on May 7, 1945. This locomotive, in common with all the first production locomotives, had a flat fronted cab and short smoke deflectors ('A' on the drawing). Alterations to the length of the smoke deflectors first appeared in 1947 and



BY NORMAN SIMMONS

followed similar experiments with the 'Merchant Navy' class. Among the first locomotives to be noted were 'West Countries' 21C122 Exmoor and 40 Crewkerne ('B' on the drawing).

The first locomotive to be built with the 'V' fronted cab was 21C164, *Fighter Command*, completed at Brighton in June, 1947. Incidentally, this locomotive was the 1,000th engine built at Brighton Works. 21C164 was not, of course, the first of the 'Battle of Britain' class and the earlier representatives all had the flat front cab when first built. They were, however, quickly converted and Biggin Hill itself, which was completed at Brighton in March, 1947, was fitted with the 'V' front cab at Eastleigh in November, 1947. The earlier 'West Country' class locomotives were also similarly rebuilt, as photographs of *Bude* taken during the famous locomotive exchange trials

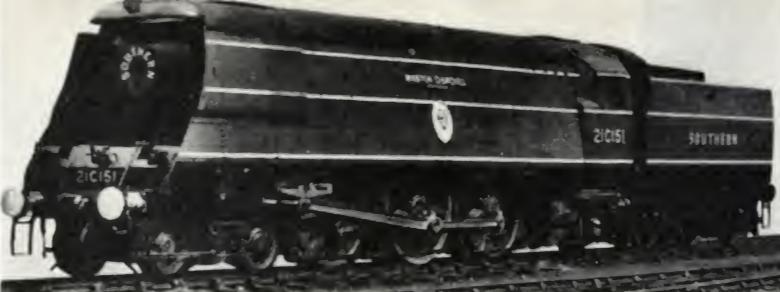
in June, 1948, clearly show.

From all this, it follows therefore that the Airfix kit can be used without modification to make either a 'Battle of Britain' or a 'West Country' class locomotive and the class of locomotive is determined entirely by the choice of nameplate and number one chooses to fit. However, should you want to have a model of one of the earlier 'West Country' locomotives before modification, it is a relatively easy job to tackle.

My model is constructed on the separate chassis idea as described last month, but you can, of course, please yourself whether you follow this idea or not. If you are constructing a non-working model it will not be necessary.

The size and shape of the old short type of smoke deflector is shown in the side elevation at 'A' in the drawing. Reducing the Airfix smoke deflector to this size will mean removing the rear support pin but the plate is adequately supported without it. The pin that is removed can be used to help in plugging up the hole in the side of the casing. You may consider it worthwhile keeping the part of the plate you cut off since this could be used in conjunction with another kit to help make up the extra long plates fitted to *Bude*, *Yeovil*, and I believe other representatives of the class around 1948—see 'C' in the drawing.

One thing that is well worth doing to the Airfix smoke deflectors, whether you modify them or not, is to reduce the thickness of the visible edges. This also applies to the lower part of the front casing. The appearance is much improved, but since it is only necessary



Above: An example of a 'Battle of Britain' class locomotive in modified form with 'V' cab front and lengthened smoke deflectors. This is 21C151 Winston Churchill in late 1947

to taper about a quarter of an inch around the edges, the parts can be made to retain their strength. Craft knife and file are about the best tools to use for this job.

Another improvement is to cut away the platform at the front end of the footplate and replace it with a piece of plastic card that fits behind the front buffer beam instead of on top of it as does the Airfix part. The point in doing this is to reduce the apparent height of the buffer beam to nearer scale height and also deepen the vertical face of the front lower footplate cover where in Southern Railway days the number was painted. It is doubtful whether there would be sufficient room to paint the number on the Airfix part as it stands.

The extensions forward of the cab side windows to make up the old type flat front cab were cut from two thicknesses of 10 thou plastic card—see the dotted line on the drawing. Two thicknesses of 10 thou card were chosen, since this enabled the inset window frames to be built up and also the thin card can be bent more easily to follow the curve of the roof. The 'V' front of the Airfix cab was cut back to give a vertical edge looking at the cab from the side. The rearmost window frame pillar must be removed. The plastic card was inset into a ledge or groove cut into the side of the cab at the bottom and the roof at the top. Isopon was used to fill in any gaps and also to build up the front of the cab but, of course, any plastic filler would do.

After the cement and Isopon had thoroughly dried it was a delightful job carving, filing and sanding the cab into shape.

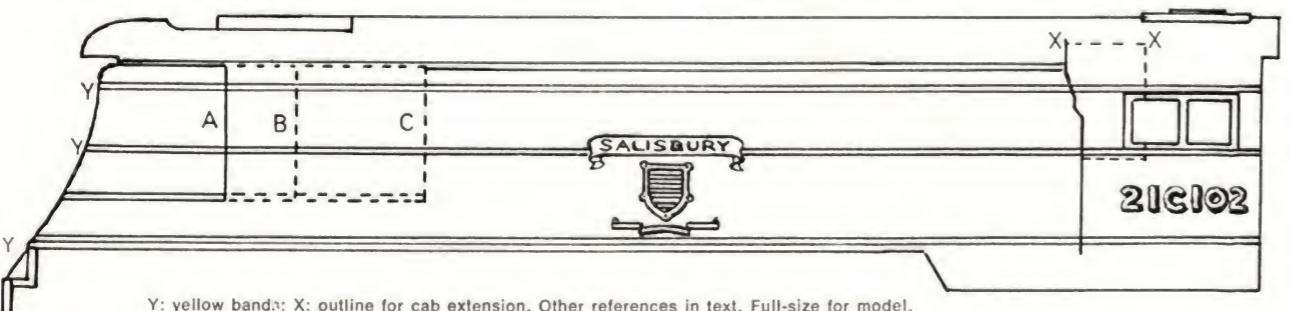
A word or two about the nameplates for these locomotives. There is a wide range of engraved brass plates available, so many in fact that I haven't space to mention them all here. Eames of Reading, for example, include 26 'West Country' and 'Battle of Britain' locomotives in the list in my possession. I recommend sending ninepence and a stamped and addressed envelope to their address at 24 Tudor Road, Reading, for a copy.

All the locomotives built in Southern

had shields containing the coat-of-arms or civic symbol of the city or town after which the locomotive was named. A number of the places were too small to have their own symbol, in which case the County coat-of-arms was used. The shields were not engraved but were flat enamelled plates, some of them being quite highly coloured, but I am afraid I neither have the space nor the necessary heraldic knowledge to detail them all here. One of the simplest was Salisbury, which had four gold and four blue straight, equally spaced, horizontal lines, gold at the top. Only 29 of the 'West Country' class locomotives had shields; 34101-21, '31, '4, '40, '2, '8, '91, '2 and '107 to quote their BR numbers. If you want to avoid the complications of the shields then you can safely choose one of the other 37 'West Country' locomotives that ran without them.

The colour scheme details given in the Airfix instruction sheet require some sorting out and the drawing is an odd combination of Southern and BR livery styles. With the number 34057 and the BR crest the locomotive and tender should be painted BR standard green, Humbrol Authentic Railway Colour No 104, not SR Malachite Green as shown. Only the top and bottom orange lining should be painted, the centre line being omitted in BR days. The Southern livery was, of course, Malachite Green and the three horizontal lines as shown in the drawing were yellow not orange. The lower panels below the bottom yellow line were painted black. I chose to remove the moulded lining details on the sides of my model. They may be an aid to painting but they look clumsy as well.

Removing these moulded lines is a bit tricky if you want to avoid removing too much rivet detail at the same time, but my favourite tool for this job is a sharp $\frac{1}{8}$ inch chisel. Lining can afterwards be added by painting or transfer. The Model Railway Manufacturing Co at York Road, King's Cross, have an excellent series of rubber transfers, including BR lining and Southern insignia for completing a model in either Southern or BR livery.



Y: yellow bands; X: outline for cab extension. Other references in text. Full-size for model.



Below: 21C101 Exeter in 1945 showing the original appearance of the 'West Country/Battle of Britain' cab, and the short smoke deflectors (British Rail photos).

PANZER 3

by
Peter
Chamberlain



Part 2: Models A to H

DETAILED descriptions of the various PzKw III models now follow in chronological order:

PzKw III Ausf A (Type 1/ZW): Produced from 1936 to 1937, chassis numbers 60101-60110. This tank, with a total weight of 15.4 tons, had an armour basis of 4-5 mm and was armed with a 3.7 cm KwK L/35 gun and two Model 34 machine guns in the turret. Another MG 34 was fitted in a ball mounting in the front hull vertical plate and was operated by the wireless operator. The gun mantlet was internal and the driver's visor consisted of a single armoured flap hinged at the top.

The suspension consisted of five independently sprung medium sized bogie wheels. Each bogie wheel was connected to an arm which in turn was connected to the hull at the rear of the bogie wheel. A coil spring was attached to the middle of this connecting arm. Two return rollers were fitted, one between the second and third bogie wheel and the other between the fourth and fifth. The driving sprocket was of the perforated type with eight holes. The rear idler wheel had eight thick spokes. The engine was a Maybach HL 108 TR of 250 hp. Max speed was 32 km/hour. 3.7 cm rounds carried: 120; MG 34 rounds carried: 4,425. Crew, five: commander, layer, loader in turret; driver and radio operator in the hull. Ten of these vehicles were built. This vehicle had a dustbin type cupola with eight vision slits. There were single doors on the turret side and square pistol ports at the rear of the turret.

PzKw III Ausf B (Type 2/ZW): Produced from 1937 to 1938, chassis numbers 60201-60215. This model was similar to the model A with the exception of the suspension which had been entirely altered; this now consisted of eight small bogie wheels grouped in pairs, and sprung on semi-elliptic springs with three return rollers. Fifteen vehicles produced.

PzKw III Ausf C (Type 3a/ZW): Produced from 1937 to 1938, chassis numbers 60301-60315. In this model there was a further modification to the suspension. There were still eight small bogie wheels grouped in pairs, but the two central

Below: The early development models. Left to right: Ausf A, Ausf B (C externally identical), and Ausf D, all with different suspension as described in text. Note armoured cupola on Ausf D.



pairs were connected by semi-elliptic leaf springs, while the forward and rear pair were mounted on a small set of semi-elliptic leaf springs. There were also three return rollers. Fifteen vehicles were built.

PzKw III Ausf D (Type 3b/ZW), Sd Kfz 141: Produced from 1938, chassis numbers 60221-60225, 60316-60340. This model was very similar to the Model C with a further slight modification to the suspension. The forward and rear set of semi-elliptic leaf springs were set at an angle from the horizontal. In this model four petrol tanks each carrying 16½ gallons were fitted. (Models A to C had only two petrol tanks containing 33 gallons.) The D model still retained the 3.7 cm gun and three MGs but the armour was increased to 30 mm, making the weight of the vehicle approximately 19 tons. This model was given the official designation or Sonder Kraftfahrzeug (Special Vehicle) number of 141 (Sd Kfz 141).

Fifty-five of these vehicles were built. They had an improved cupola with external armoured shutters and only five apertures.

PzKw III Ausf E (Type 4/ZW), Sd Kfz 141: With Daimler-Benz factory number ZW38 and chassis numbers 60401-60441, this type was produced from 1939.



Differences in hull and turret fittings between early and late models are clearly seen here. Left: Ausf E, first major production type, with flush engine covers. Right: Ausf L and later models with numerous hull and turret changes.

Model E was the last of the prototype series, this version having another type of suspension that marked the beginning of a new development. This was formed of six small bogie wheels, each independently sprung on a torsion bar which was set forward of the wheel axle and connected to it by a radius arm. As the torsion bar extended across the full width of the hull, the bogies on either side had to be offset from each other approx 5 inches. A shock absorber was provided for the first and last bogie wheel on each side. A new type of idler wheel was now fitted, which was solid but with eight spokes set in relief and eight elongated holes between them. The driving sprocket remained similar to the previous models, being of the perforated type with eight round holes, and three return rollers were fitted.

The armour basis remained the same as in the previous models, but the driver's visor was provided with an upper and lower sliding shutter which could be closed together. This was more prominent than the single hinged flap. An

improved Maybach engine was fitted in this model, the HL 120 TR V-12, of 11.9 litres capacity, developing 320 hp at 3,000 rpm, and a new gearbox, the Variorex preselective synchromesh SRG 328-145 with ten forward speeds including two over-drives and four reverse operated by a servo.

The machine gun ball mounting in the hull was now set behind a square frame bolted to the front of the superstructure. Planned to be the main weapon of the Panzer Regts, about 100 vehicles of this type were built. Weight was 19.5 tons. Model E was used in Poland in 1939.

PzKw III Ausf F (Type 5/ZW), Sd Kfz 141: Chassis numbers 61001-65000, this type was produced from 1940. This model was basically similar to Model E, having the same type of suspension, driving sprocket, rear idler, driver's visor, hull machine gun frame, and 3.7 cm gun in an internal mantlet, but was later armed with the electrically fired 5 cm KwK L/42 gun and co-axial machine gun in an external mantlet. Some were later re-armed with the long 5 cm gun.

A rack was fitted to the rear of the tank containing five smoke generators. These were held into position by spring loaded catches and released by means of a rod from the turret on the ratchet principle. Each pull released a smoke generator. A later addition was the fitting of a stowage box behind the turret. Maybach HL 120 TRM engine of 300 hp.

Some of these vehicles were used in the invasion of France in 1940; 99 5 cm rounds and 2,000 MG rounds were carried.

PzKw III Ausf G (Type 6/ZW), Sd Kfz 141: Chassis numbers 65001-66000, this type was produced from 1940. This vehicle retained the same suspension, drive and idler wheels as the Model F. Main difference between these models was a new driver's visor which had a single prominent shutter. A new cupola with thicker armour, still having five vision ports but with narrow twin covers that moved apart from each other, appeared during production. Originally armed with the 3.7 cm gun, this was later changed during production to the short 5 cm.

Below: In addition to the firms mentioned in Part 1, Krupp also produced a prototype for the 'ZW' (Pz III) requirement. Though not chosen for production, many of its features were incorporated in the Pz IV. **Bottom:** PzKw III Ausf F, one of the up-gunned vehicles with 5 cm gun and external mantlet.



Top: PzKw III Ausf G in production. First two vehicles have the 3.7 cm gun, but the third is one of the first with the 5 cm weapon. **Centre:** PzKw III Ausf E, first major production type. **Above:** An Ausf D chassis converted to a tractor for towing production vehicles in the factory. Note comparison between suspensions.

Some Model Gs were used in North Africa, these were known as Ausf G(Tp) (tropicalised version) being fitted with special equipment and other various modifications to adapt it for use in tropical climate. 450 Model Gs were built.

PzKw III Ausf H (Type 7/ZW), Sd Kfz 141: Chassis numbers 66001-68000, this type was produced from 1941. With this model, due to the increased armour thickness, various changes were made. The suspension bars were strengthened and the tracks widened from 360 mm to 400 mm. The bogie or road wheels were made narrower and the return rollers were spaced wider apart, the front one being moved near to the Luvox shock absorber. This was done to support the heavier track. A new type of front or drive sprocket with six D-shaped holes and an open eight-spoked rear idler was fitted. This type of suspension proved very successful during the desert fighting in North Africa. The armour basis was still 30 mm but additional 30 mm armour plates were bolted on to the upper and lower nose plates and also on to the tailplates to neutralise the increased penetrating power of the British anti-tank weapons. This work was done at the factory during production. The Variorex preselective gearbox was now dropped and in its place the Maybach synchromesh SSG 77 gearbox without pre-selector mechanism was fitted. This provided six forward speeds and one reverse. The same driver's visor and hull MG mount was used, these being covered by spaced armour.

Armament was the 5 cm KwK L/42 and two MGs. Hitler had demanded that this vehicle be armed with the 5 cm KwK 39 L/60, but contrary to his demands this was not carried out during the production of these vehicles. However, some 'H' vehicles were later re-armed with the 5 cm KwK 39 L/60. Weight was 21.6 tons and ammunition stowage was as for the Model F.

THE AVRO 504K

Last of two articles describing colour schemes and variants worth building

BY PAUL LEAMAN

HAVING dealt with the modification of the Airfix 1:72 scale model of the 504K into simple variants, we now progress to three rather more complicated examples.

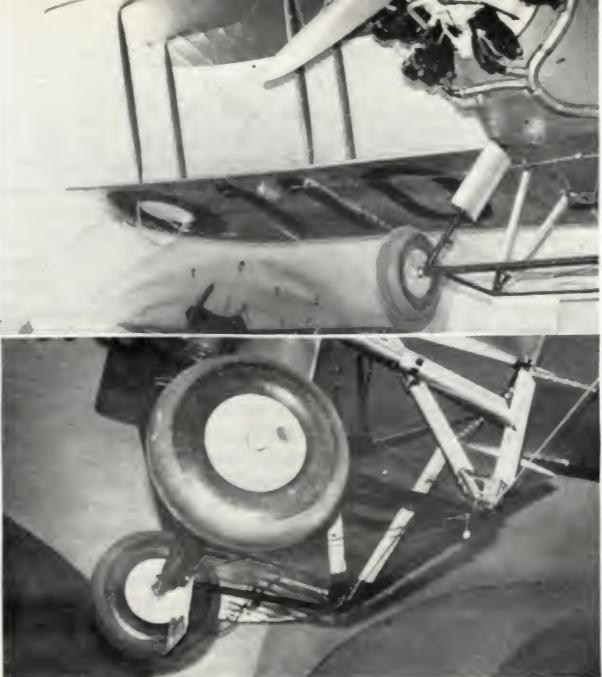
The first, Avro 504B serial No 873, was one of the three planes used by the Royal Navy in its attack on the Zeppelin works and sheds at Friedrichshafen on November 21, 1914. The other two aircraft used were serialled 874 and 875, and similar to that drawn in all respects. They were unique in as much as they were the first aircraft to carry a mechanically operated bomb release mechanism. A. V. Roe himself has described this as 'A Heath Robinson job', which was probably a fair description. But they were effective and in the event only one bomb—carried by Sqn Cdr E. V. Briggs—failed to be released. Basically the Avro 504 changed very little from 'A' to 'K' and so conversion isn't as difficult as it would first seem.

The major work involved concerns the fuselage. It was of the same basic proportions as the 'K', but rather less sophisticated and, due to a difference in the cowling arrangement, appears to be slimmer. To achieve this, remove a wedge of plastic from the inside of the nose portion of each of the fuselage halves. This will be 2 mm at the extreme nose (directly behind the cowling) and will taper to zero at the rear edge of the rear cockpit. Carry out this modification on both halves and cement together progressively. Join first the rear halves of the fuselage and allow to set. Clamp this securely to hold the joint firmly and apply cement to the front section. Clamp the front together gently and uniformly so that a continuous joint is formed from nose to tail. Allow to dry out completely. When set, build up the nose section to have flat sides as shown in sections 'a-a' and 'b-b' on the second drawing, using body putty. Allow this to dry out completely and then file and sand it to a 'flat' surface. Note that the cowling fairings are added at a later stage so these surfaces must be at 90° to the fuselage bottom, the fuselage top being rounded as shown in the sections. Cut out location points for the undercarriage and wing struts. Re-drill the mounting hole in the front face of the fuselage to carry the engine.

The cowling is offered up to the fuselage front and it will be seen to have a 2 mm overlap on either side. On the original this was faired into the lines of the fuselage with a triangular shaped semi-circular sectioned fairing. On the model this can be either built up in body putty or—more realistically—cut out of stiff paper or 10 thou plastic card and curved to shape. Typical sections may be seen in sections 'a-a' and 'b-b'. The front of the cowling will require attention to obtain the cut out shape of the 504B. This is best done by rubbing the front of the kit cowling on a smooth file until the thickness of the original front moulding is removed. Cement a thin disc of styrene sheet across the resulting gap and, when thoroughly dry, file down to blend in with the radius of the cowling. The front cut out may then be marked on to it and a central hole of $\frac{1}{8}$ inch diameter (5 mm) drilled through its centre carefully. This is then opened out as per the drawing of the cowling front.

Before final assembly it will be necessary to alter the profile of the rudder. Little information was available on the true shape of this but it was apparent from the photographs studied that it wasn't identical to that of later aircraft. It is thought that the shape drawn is a very close approximation. The kit rudder is best removed at this or an earlier stage and a second one, carved from thick plastic card, substituted.

The aircraft used on this raid carried a crew of one only and it is probable that additional fuel was carried in the front cockpit. This was covered with a fairing which shows up plainly on photographs. There was no gravity fuel tank above the wing on these



Above: Two useful views of the preserved Danish Navy Avro 504N in Copenhagen Museum show details of the nose including shape of collector ring and undercarriage fairings, plus a close-up of the undercarriage legs. Note how exhaust pipe clips to the legs (Pictures by Karsten H. Nielsen).

machines so the location holes for this must be filled with body putty.

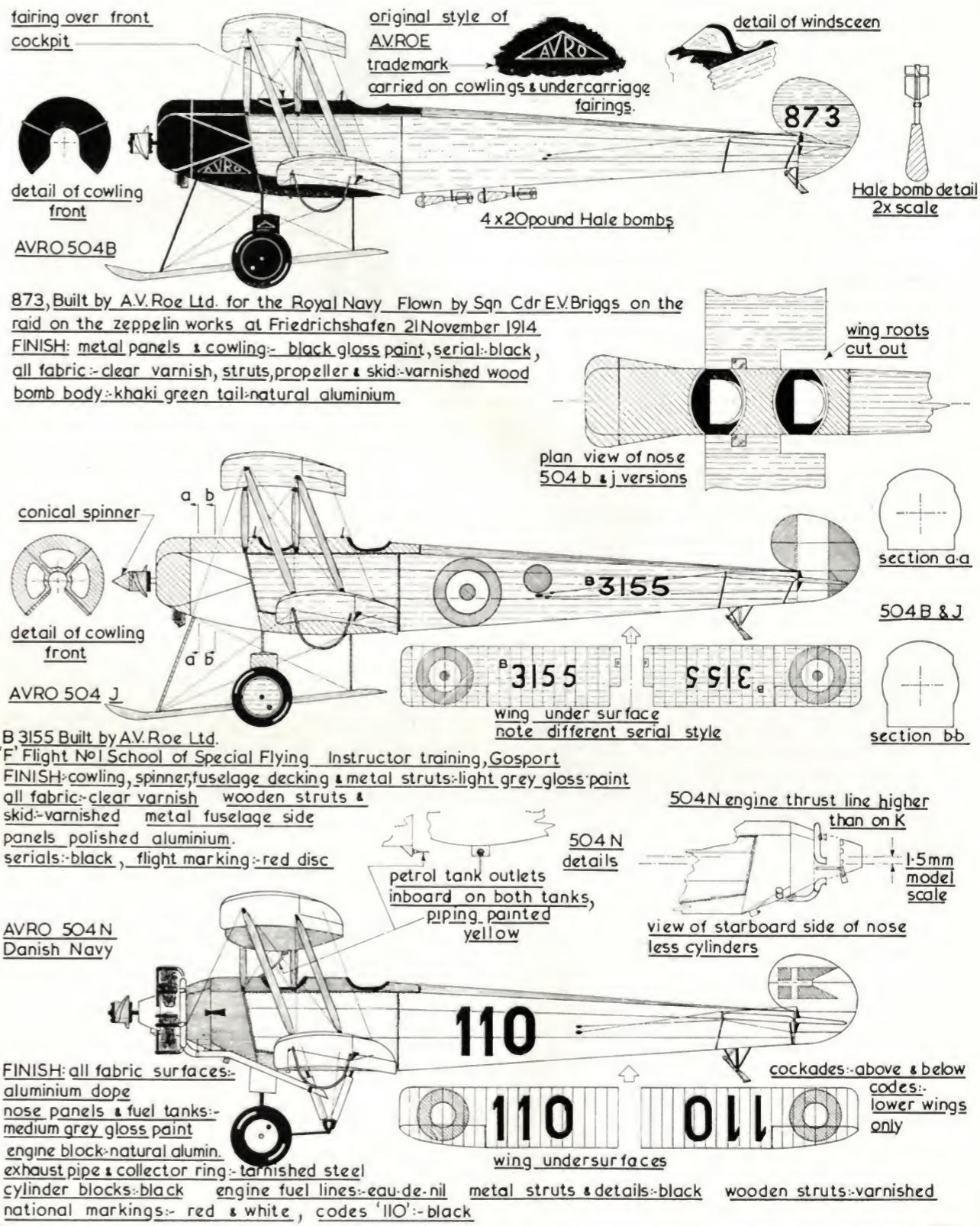
Assembly of the model may then proceed in the manner described in the kit instructions. As with the previous conversions it will be necessary to add the protective loops beneath the lower wings. Three further points of deviation remain. (1) The wind screen was a rather more streamlined affair than was common on later, production, aircraft and it is best cut and bent from a small piece of transparent plastic and added after painting. (2) The tail skid was further aft than the later standard aircraft, and was not supported by side struts as their's were. Also it was rather smaller. This can be cut down quite easily from that supplied with the kit. The bombs used were 20 pound Hale HE and were simple in shape and operation. They may be easily fabricated from those supplied with the Airfix Lysander, the bodies of which are of a suitable shape. Exact details of the bomb support and release mechanism are not known but the location was as drawn, and at this scale can be approximated as shown. The bombs were made safe in transit by a safety mechanism and were armed on dropping by a rotation of the propeller section at their rear. There was no nose fuse and detonation was caused by the 'set back' obtained on impact. Contrary to later practice, the body of the bombs was painted a pale colour—buff.

As is indicated on the drawing, the cowling, metal panels and wheel discs were painted with a glossy black paint. It had in fact a very high gloss. The remainder of the aeroplane, being varnished linen, may be painted with Humbrol GWR Coach Stock Cream which gives a semi-gloss finish. No national markings were carried. Comment on this pattern of tail skid is suggested by the fact that the fourth aeroplane prepared for the raid, No 179, failed to take off due to tail skid breakage.

The second drawing shows Avro 504J, No B3155 of the famous 'Smith-Barry' School of Instructor Training at Gosport. The 504J was in fact the true World War I, 504 training aircraft. The type was introduced in 1916 and machines ordered as 'A's were converted on the production line to the 'J' standard. The main change with the 'J' was the introduction of the 100 HP Gnôme Monosoupape rotary engine which gave a considerable increase in the power available and, together with the nickname 'Mono-Avro', gave it a reputation of reliability.

In immediate outward appearance the aircraft changed little

Continued on page 260





Three Avro 504 models made from Airfix kits. Left to right: The last active 504K on the British civil register, G-EASF, coloured Brunswick Green and white. Note 'quartered' wheel hubs. G-AAAF, another civil 504K in yellow with black fin and rudder, struts, and cowl, plus polished cowling. G-ADDA, a 504N conversion, doped aluminium overall with French Blue nose, trim and registration (Models and photos by Peter L. Gray).

Avro 504—continued

and it still retained its flat sides and faired cowling. Thus the notes above for the modification of the 'K' to the 'B' pertain also to the conversion of the 'K' to 'J'. One difference concerned the front of the cowling which, with the increase of horse power, was cut away to give a better airflow and thus better cooling properties. The revised cut out shape is drawn. It may be reproduced in a similar manner to that of the preceding 504B. Further differences include the conical spinner fitted in front of the propeller of this particular machine and the cut outs in the trailing edge of the lower wing at its root. The spinner is easily fashioned from a piece of sprue of suitable diameter. The wing cut outs, which gave improved landing visibility to the instructor, were of the width of the space between the fuselage and the first wing rib and reached from the trailing edge in to the rear wing spar. This depth can be taken on the model as being in line with the ailerons. It may be noted that this aircraft and all other standard 'J' machines had the later type of tail skid.

The photos from which these drawings were prepared show the finish of B3155 to be as immaculate as would be expected from an 'elite' training unit. The overall finish was of clear varnished fabric but the nose panels, cowling, spinner and fairings were all in high gloss light grey. Exceptions were the aluminium panels on either side of the nose which were left in their natural state and highly polished. A point of interest is the variation of the styles of the aircraft serials. That on the fuselage had squat figures and a flat-topped '3' as its first digit. Below the wings the '3' has rounded corners and all figures are narrower. Serials in both positions had a small sized prefix letter 'B'.

The final aeroplane depicted is the Avro 504N belonging to the Danish Navy which now, in immaculate state of preservation, hangs with other aeroplanes including a 'Dancok' and a 1911 Danish-built 'Burmeister and Wain' aeroplane in the museum in Copenhagen. The machine is drawn in its present condition. It is obvious, however, that in its service career certain aspects would have differed considerably. A detail of this nature is the collector ring and exhaust pipe which are probably replacements. These are now in burnished steel with brazed joints very much in evidence. Also the engine cylinders are now glossy black.

Before proceeding with the description of the modifications needed to produce this aircraft from the 504K of the Airfix kit, it must be pointed out that the July, 1967, AIRFIX magazine carried a detailed conversion article on just this subject by Alan W. Hall. This did deal with a standard British 'N' and the basic instructions should be taken from that article. The only points dealt with here are those which cover the variations from that description apparent in the Danish aircraft. There are, in fact, several variations and some are quite significant.

The underside of the fuselage of the Danish machine behind the engine is completely faired in. This makes the block needed for conversion from the 'K' a little deeper but has the advantage that it obviates the need for the somewhat complicated arrangement of carburettor, oil sump and filter which hang in this position on the British machine. The true shape for this nose may be taken from the view of the starboard side of the nose section. It will be noted that some detail does protrude through the fairing, however. A second variation is that the exhaust collector ring on this machine was not completely circular. It started at the lower starboard engine cylinder and, after passing around the nose, finished at the one above it, as drawn. The exhaust pipe itself is also of a different shape. The July, 1967, article refers to the use of a modified engine from an Airfix Superfortress. Fortunately, this is no longer necessary as the new Airfix kit of the Henschel

Hs 129 contains a pair of twin row radial engines—seven cylinders to the row. These are of suitable size and need only the addition of external detail to make them acceptable for exposure on the uncowed nose of this model 504N. This detail may be taken from the accompanying photograph and a reference to the Aeromodeller plan of the type will also help.

The forward undercarriage leg of this machine differed in that its shock absorbers were faired over with airfoil sectioned fairings. These can be carved from wood or, more easily, bent from thin plastic card, filled with body putty and filed to final shape.

The wing petrol tanks were of a more rounded appearance than the British version and started behind the leading edge curve. The fuel pipes were led from the inside face of a wedge-shaped fairing on each and thence down to the fuselage. The wing shapes, upper and lower, are as described in the July, 1967, article.

This aeroplane's finish has already been described as immaculate. This is no exaggeration. In particular its metal panels are finished in a glossy medium grey. The propeller is fabric covered and also grey painted. The engine body is polished aluminium and engine fuel lines are painted eau-de-nil. How this condition compares with its 'in service' condition is difficult to assess, but what can be said is that it does much credit to the museum authority which maintains it.

Cockades and codes for the Danish aeroplane may be taken from the Stoppel range of transfers, though it is possible to make these by painting over RAF roundels of suitable size.

This and the preceding part of the article refer basically to the 1:72 scale Airfix kit of the Avro 504K. In all fairness, it must be said that the kit does suffer from an inaccuracy in both the length and depth of its fuselage. To correct these faults would mean a major rework of the kit and would not in truth enhance its appearance. Left uncorrected this model has all the character and atmosphere of the original 504K. A second kit of this aircraft was produced about ten years ago by Merit in 1:48 scale. It is now very rare but the ideas given here are, of course, also applicable to this model.

Thanks must be expressed to the following for the loan of material and photographs used in the compilation of this article and the drawings: G. S. Leslie, P. L. Gray, L. A. Rogers, C. J. Lawrence, K. H. Nielsen and C. Bowyer.

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Pictorial History of the RAF, Volume 1, by J. W. R. Taylor (Ian Allan).
Aircraft Illustrated, January 1969; *Aeromodeller*, October 1956;
Airfix Magazine, July 1967.

Correction: In the previous article the photograph of 504K H2311 was wrongly captioned as being the Shuttleworth Trust Machine. It does in fact belong to the Royal Air Force.

Skybirds—from page 252

I sold them, for a bob or two each, to local youngsters lacking the patience to assemble plastics! I bought a raincoat with the proceeds, but never was able to wear it without feeling terribly guilty—as though I'd thrown away in one mad moment all those halcyon days of youth!

Only two of my Skybirds survived. A Hart, which I still have, and a Vega Gull, which went into Peter Farrar's vast model collection. He was quite overcome when he heard what had become of about 100 Skybirds—as I first met him only a week or two after the dreadful deed was done!

These days, I am preoccupied with rather more animated types of models—radio controlled ones—but there remains a very soft spot deep down that cherishes the name, Skybirds.



Hereford from a Hampden

SIMPLE AIRCRAFT CONVERSION BY ALAN W. HALL

THIS conversion is about the only really major one possible with the new Hampden kit; it is also one of the easiest I have done in recent months. There are no hidden snags and although reference is scarce, there are several good pictures available of one particular Hereford which should satisfy most model makers.

The Hereford was not widely used mainly because of its unreliable engines, but it was issued to Nos 35 and 185 Squadrons. As far as can be ascertained it took part in few, if any, operations, and was generally employed in a training role. No 185 Squadron, for example, became No 14 OTU and our three view drawing of L6070 was one of this unit's aircraft. Whereas No 14 OTU operated from Cottesmore, its sister unit, No 16 OTU, was based at Upper Heyford. The first Hereford to be delivered to the latter arrived on May 7, 1940.

Hereford production was based at Short Bros and Harland, Belfast. Built to Spec 44/36, the Air Ministry ordered 100 of these aircraft powered by 1,000 hp 16-cylinder H-type Napier Dagger in-line engines in 1936 and the first production Hereford (L6002) flew late in 1939. Eventually, 150 were built but many were re-engined with Pegasus radials to Hampden standards.

The Dagger and the Pegasus had easily convertible mountings. This is of advantage to the model maker converting the Hampden as little is required in the way of mods to the wings or engine cowlings of the original kit. I found that by cutting off part of the engine mounting I could easily reshape the radials into H-type in-lines.

Photographic reference on the Hereford is scarce. Every picture I saw was of L6070 coded GL-A2. Most of these were taken by *The Aeroplane* photographer when the aircraft was in service with No 14 OTU and almost every book one reads on the subject has this illustration. Books carrying descriptive matter about the aircraft are Thetford's *Aircraft of the Royal Air Force, Profile No 58*, and Green's *Famous Bombers of the Second World War*. The latter also has two ground shots of the first and second production aircraft.

STAGE 1 The fuselage and tail unit of the Hampden kit are assembled according to the instructions. There should be few difficulties here as the various parts fit with accuracy, even the nose, cockpit and turret transparencies. There was a small amount of flash on various parts but this was easily trimmed off with a sharp knife before assembly.

February, 1969

When dry, and this can be done at any stage during the rest of the construction, the fuselage join lines and above all the join between the tailplane and the fuselage is cleaned up and prepared for painting. Readers will appreciate that no guns were mounted; presumably the Hereford, being a training aircraft, these were not found to be necessary. Similarly, the D/F loop appears to be missing on photographs, though this may simply mean that the installation was retracted into its fuselage mounting at the time.



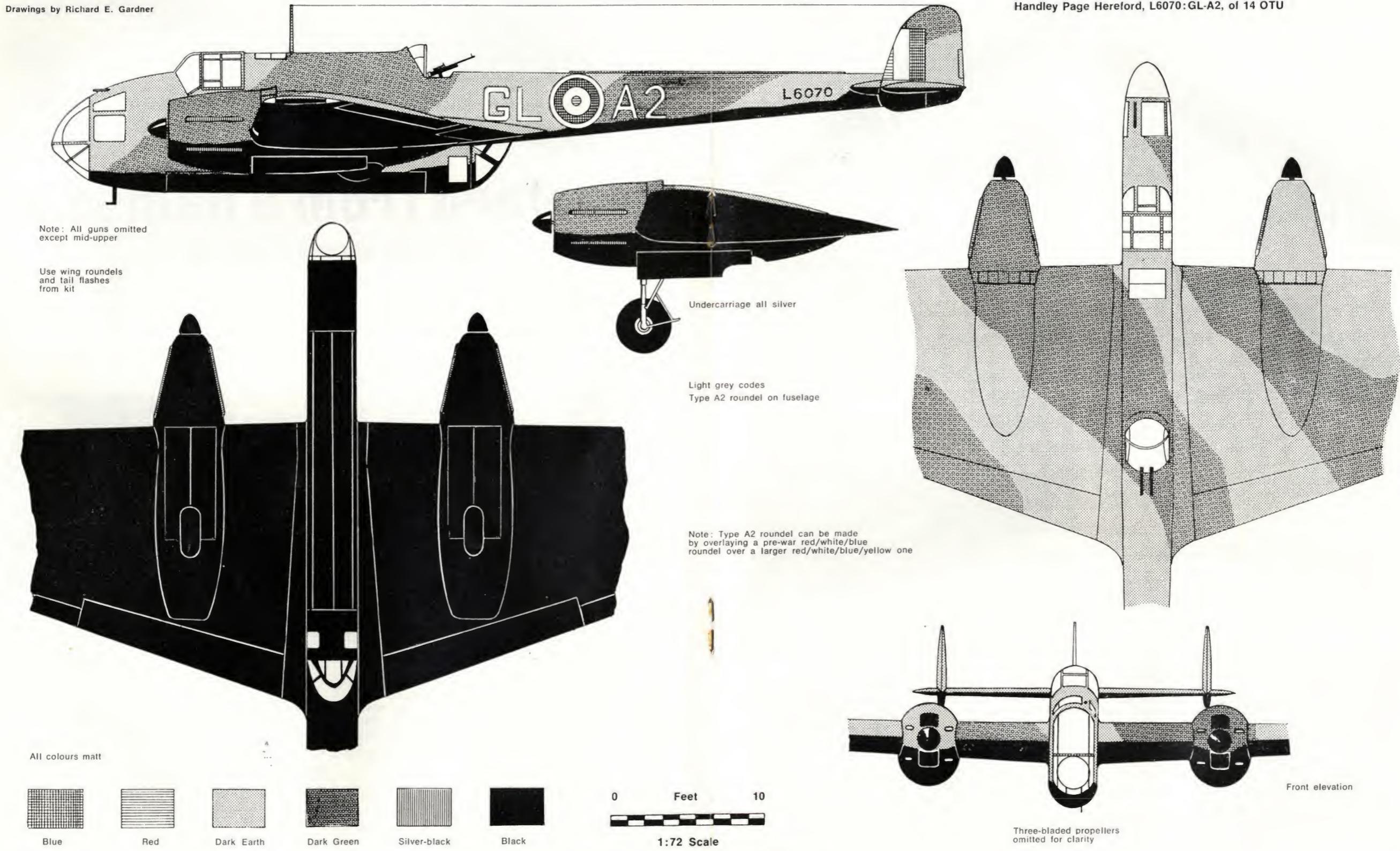
STAGE 2 The two wing halves are glued together and the undercarriage main members are placed in position as described in the kit instructions. These can be folded away in the nacelles whilst the rest of the construction is being completed. The forward part of the engine mountings are then cut off at a right angle close to the wing leading edge.

STAGE 3 Balsa blocks one inch long by the depth and width of the existing nacelle are then stuck in place. These must be left overnight to dry as to start cutting and shaping the Dagger nacelle before the glue has set will inevitably lead to trouble.

STAGE 4 The first job in fashioning the new nacelles is to cut the plan view to shape with a knife and then shape the side elevation. The rough shape is sanded fairly smooth and then the position of the propeller boss is drawn on the front of the engine. Radiators above and below the propellers are made by

Continued on page 264

Scale drawings on next page



Hereford conversion—continued

drilling out the holes with a Mini-drill and a dentist's bit. These are sometimes hard to come by but my illustration shows the type needed. When this has been completed, the top and bottom halves of the nacelle need to be shaped inwards to the air intakes as can be seen in the plan and picture.



STAGE 5 Depending on the size of drill bit available, I then advise cutting 'U' shaped grooves on each side of the nacelle to take the exhausts. The exhausts themselves were made from rubbed down cocktail sticks cemented in position. The whole nacelle was then coated with a thick solution of talcum powder and clear dope, left to dry and then rubbed down with fine sandpaper until smooth. A second coat of the filler may be needed but this should be much thinner than the first and very lightly sanded. Exhaust gills above the engine were cut from the Hampden nacelles, smoothed down on their inner sides and stuck in place.

STAGE 6 Finally, small radiators can be made from wood or scrap plastic and fixed under the engine. Propellers proved a slight problem. Luckily I had two spare from a conversion I am making to the Sunderland and these proved, after having the blades cut down a little and the shape adjusted, just right for what I wanted. Other props will do just as well and this is where the spare parts box comes in handy. Adjustments may be needed



here or there but it will be easier to use alternate props from another kit rather than try to modify the existing Hampden ones. The wings are fixed to the fuselage, undercarriage wheels, secondary strutting and wheel doors added, and the model is then ready for painting.

PAINTING AND CAMOUFLAGE

The kit markings will do for above the wings but there is a slight problem when it comes to the fuselage roundels. The central red dot is too large and to overcome the problem I used a little matt white and cut a dot from the roundels supplied with a pre-war model kit. An alternate method is given on the plan. The codes also provided a problem but here I overpainted a suitably sized Yeoman offering with light grey and cut these out close to the letter before putting them in water to soak. The serial was made up from black Letraset.

I used the Humbrol Authentic enamels for painting the aircraft as these are the best available and dry very quickly.



Above: Completed model. Top of page: Model ready for painting with transparencies placed, but not cemented, in position. Other pictures on this page illustrate Stages 4 and 5.

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THE BATTLE OF BRITAIN

A Harry Saltzman Production

Michael J. F. Bowyer previews the making of an epic new film

SEPTEMBER, 1969, should see the premiere of what may well be the most exciting aviation film of them all, *The Battle of Britain*. For enthusiast and modeller alike it will certainly be a star attraction. Its subject is such that the film will doubtless be one of the most eagerly attended for many a day.

Originally it had been hoped that it would be an all-British enterprise, but the saga of the squeezes was such that Britain even had to lean on American money for this, the story of her greatest hour. Intention to film the Battle was confirmed several years ago, and it was decided that the film should include part of the fight for France. Indeed, it opens with a spectacular strafing of a French airfield by Me 109s, filmed from an Alouette helicopter. A month's respite followed the fall of France, during which both sides geared up for the next round of fighting. The film reflects this pause and then shows the battle waged in four phases.

First come the scenes depicting the attacks on shipping and radar stations, followed by the August fighting. Next we will see the bombing of London. There are convincing street scenes and views of up to thirty Heinkel 111s threading their way across the curving Thames as they make their run-in. St Catherine's Dock blazes furiously, an effect achieved with the skilful use of lighting and smoke in a blitzed warehouse, while London Fire Brigade's firefloat Massey Shaw pumps great cascades of water on the flames.

Below: Convincingly finished Hurricane takes off from an airstrip in France early in 1940. Bottom: Useful scene for modellers shows He 111 crews lined up for inspection in their grey flying suits and helmets.



Fire over London—again! One of the impressive early sequences from the film shows firefloats tackling a blazing warehouse in St Catherine's Dock after one of the night raids on London.

Finally, with Operation Sea Lion called off by Hitler, the film comes to its conclusion, by which time the viewers have had a feast of fighters and bombers the like of which has never been seen on the screen before. Colour makes the splendid photography all the more spectacular, and the air battle sequences are likely to remain a vivid memory for many a day after you've seen the film.

Originally it was to have been Rank or Paramount who made the film, but now United Artists are handling its production. S. Benjamin Fisz, who is the producer, served during the war with 303 Squadron and so he has personal experience to call upon. As well as the know-how from such films as *Goldfinger*, Director Guy Hamilton will doubtless draw on his wartime experiences in small boats, which earned for him a DSC.

The cast list is star-studded. It includes Patrick Wymark in the part of Sir Trafford Leigh-Mallory and Kenneth More is Station Commander at a fighter airfield intended to indicate Biggin Hill, though in fact the scenes were shot at RAF Duxford. Sir Laurence Olivier plays the part, of Lord Dowding, C-in-C of Fighter Command. That great man, whilst playing no part, viewed the filming at Duxford. Ever ready with crisp comment, he is said to have remarked, 'I never thought I'd see one of those working!' as an Me 109 taxied by.

Others in the cast include Christopher Plummer, Sir Michael Redgrave, Sir Ralph Richardson, Susannah York and Trevor Howard. Having a preview of some of the stars in their uniforms, I was struck by the likeness some bear to the great figures of those days. Hermann Goering, for instance, is superbly portrayed by actor Hein Reiss.

There is no hero as such in the film. If one searches for a central figure though, it is seen to be Lord Dowding, whose memoirs, incidentally, are to be published in the not-too-distant future. Dowding left Fighter Command after the Battle and then seemed to fade into the background of the war with far less glamorous positions. Some of his policy decisions had been at odds with those of others. At the studios and on locations Lord Dowding, now an old man, has been seen to be 'a new man, a most remarkable man', to quote Air Commodore Wallace, ex-Director of Public Relations for the Royal Air Force, who is involved with the promotion and publicity side of the film.

Continued on next page

'Battle of Britain'—continued

To advise on German tactics, General Adolf Galland was consulted. It is said that when first asked about the Battle of Britain he simply said there 'was no Battle of Britain'. Whereas a top figure was consulted for help on the German side, for information on British tactics, the Company has had as consultants Group Captain Douglas Bader, 'Ginger' Lacey—a Sergeant at the time—and Bob Stanford-Tuck, all very famous veterans of the Battle itself.

Having decided to make the film, the task after casting was to find sites for filming, and—most important—the aircraft which, for many, will be the stars of the film. At one time, Harry Saltzmann had a force of more than a hundred aeroplanes, many of them guaranteed to bring excitement to even the most hardened enthusiast. They included one non-flying Ju 87 loaned by the RAF, and two Proctors converted to a sort of Ju 87 configuration, but which were not in fact used in the film. From the Royal Air Force, Rolls-Royce, Hawker Siddeley, the Shuttleworth Trust, Eire, Canada, and particularly the Spanish Air Force, aircraft were gathered.

In a hangar in Spain, Group Captain Hamish Mahaddie, complete with bowler, doubtless, came across thirty Hispano HA-1112s which, being basically Me 109s, could, of course, be altered with square wing tips and tail struts, as near as possible to Me 109E configuration for 1940. They were in first-class condition and out of service, so he bought the lot. CASA 2-111 bombers—virtually Heinkel 111s with Merlin engines—were still front line bombers and after negotiation a total of thirty were loaned for the filming at Tablada in Spain. Two were purchased and are likely to be seen from time to time in Britain, where they have already spent nine months.

At Pinewood, a production line was set up to build fibre-glass Spitfires and Hurricanes for the sequences in France and Britain. Heinkels were not made because they were too

Below: Luftwaffe fighter pilots in confident mood in their improvised mess at a captured French airfield before one of the first big raids on Britain, Summer, 1940. **Bottom:** The 'Eagle Day' raid is unsuccessful and Goering (played by Hein Riess) berates senior Luftwaffe officers.



Top: 'Do it this way'; director Guy Hamilton rehearses actor Christopher Plummer on the finer points of getting into a Hurricane. **Above:** Behind the scenes while a cockpit close-up is filmed.

large. These were full-scale plastic replicas, and very convincing they look, although the Spitfires had slightly too much forward rake on their undercarriages. Camouflag-ing was good and quite authentic for the most part, but blue and black under surfaces instead of white and black for the May-June period was an unfortunate choice. For some curious reason all of the British fighters wore white codes for the film instead of grey. Long spells of rain last summer ensured that these soon became splashed, however, and lost their brilliance.

Some of the plastic machines had low-powered engines fitted to turn the propellers, giving extra authenticity for background scenes. A few survived, but most were lost in the ground strafing and bombing sequences at North Weald, Hawkinge and Duxford. In one of these, Duxford's single 1918 vintage hangar was blown up. On film this presents a stunning scene. Later the hangar was set on fire and it caused one of the many amusing incidents during production. A passing motorist did his duty and rang for the fire-brigade, which sent three engines racing to the aerodrome with crews eager to douse the blaze which was well under control. For the bombing sequences craters were dug on the airfields, and charges appropriately placed were detonated by remote control. On one occasion taxiing Spitfires entered the zone where the charges were bursting and, shorn of visibility, one taxied into a camera crew who had to make a hasty withdrawal.

It is perhaps of interest to note that, just beyond Duxford village, another plastic Spitfire was once partly built. With

a shortage of Bauxite and alloys seeming probable, Aero Research Ltd (now CIBA) was asked to go ahead in August, 1940, with the construction of most of a Spitfire fuselage in Gordon Aerolite. This is a dark brown plastic that smells something like garlic. It was made of untwisted fibres of flax impregnated with phenolic resin, and made into strips about six inches wide. They were placed side by side and overlaid with others at right angles to build up the required thickness. Hot pressing then bonded them into a single sheet. Tests on the material at Farnborough showed it to be the most promising available for use as a stressed skin covering for aircraft. It was longitudinally and vertically as strong as duralumin and at 45-degrees had the stiffness of plywood and thus could be readily shaped.

A Spitfire fuselage was then built almost entirely with Aerolite apart from the main spar members and some pick-up points. This fuselage, extending from the main spar frame to the joint with the tail section, indicated what could be achieved had supplies of vital materials halted which, mercifully, they did not. The fibreglass fighters for the film had a wooden framing with plastic covering. Approached from the rear these Spitfires looked particularly convincing.

A careful attempt has been made to ensure that the aircraft carry no code letters or serial numbers that can be tied up to any used in the real Battle. Thus the green-brown-blue Spitfires were coded AI, BO, CD, DO and EI and the Hurricanes MI and KV. The letters BO were applied to the plastic Spitfires, eg, BO-H:N3317 and BO-G:N3312, and EI appeared on the real Spitfires late in the filming. The real Hurricanes have serials in the H342X range and the Spitfires, more realistically, have N33 serials taken from the blackout parts of the N33XX Defiant range. Codes adopted were probably not really used for various reasons, but AI I can confirm, since this I once saw on a Beaufighter II . . . at Duxford!

German aircraft were painted in two shades of green on

Below: One of the full-size plastic Spitfire replicas with only its undercarriage spoiling the illusion. These 'aircraft' are seen only in the background, however. **Below, centre:** This Spitfire II, CD-M:N3321, was one of the more authentic machines taking part—many Spitfires were later marks disguised. **Bottom:** Bombing up a 'Heinkel III' for a raid.



'Scramble!' The scene on a Fighter Command airfield as pilots race for their machines during the airfield bombing phase of the 'Battle'. Bombs burst on the far horizon (This picture and all others showing scenes from the film by courtesy of The Battle of Britain production company).

top with blue under surfaces and, in the case of the fighters, sides too. Both Heinkels which operated from Duxford had frequent code changes and the unit letters used included V1, A5 and 6J, the third letter being either white, green or red. Spinners and fuselage numbers on the fighters were in red, white or yellow with black outlined numbers. Rank badges were also carried, and the fighters had frequent colour changes. One of the most unusual of them was the Hispano HA-1110 which at one time was red 11 with a red spinner. For the film the '109s' had their under-wing armament removed and bracing struts, as mentioned earlier, fitted to the tailplanes.

Considerable care was taken with the markings, applied by a special Markings Unit. At an early stage at least one Spitfire had Type D under-wing roundels which were soon changed to Type A. The red patches stuck over the gun ports on wartime Spitfires faithfully appear on the Mk II, V and IX aircraft in the film. That a Mk II (P7350, which saw war service with Nos 66, 603, 616 and 266 Squadrons) should fly for the film is quite remarkable. After lying dormant for nineteen years, and for much of this time at Colerne, an oil change and new plugs were sufficient to get her engine ticking over. When the weather in August was so bad that nine Spitfires and three 'Me 109s' had to fly to Montpellier in the south of France, in search of sunshine, the Mk II was one of those that went on the comparatively long journey.

Not the least interesting machine was the North American B-25 Mitchell N6578D used for much of the air-to-air filming. Flown by Jeff Hawke, it featured a bizarre colour scheme and various modifications. A clear dome on the nose accommodated one cameraman, and the Director sat with his head in what resembled a large astrodome. Another camera position was in the tail turret, and the bomb bay carried another. Shots could also be taken from the fuselage waist positions. Six black and six cream chordwise stripes were painted on the rear sections of the outer mainplanes with one black and two cream stripes across the inner wing sections. The remainder of the wings and the engine cowlings were light grey. The red-tipped propellers were silver and the sides of the nose carried a white panel, film emblem and 'THE BATTLE OF BRITAIN' in black. A black line was painted on the top of the nacelles. The port half of the aircraft aft of the wing trailing edge was painted dayglow red

Continued on next page

'Battle of Britain'—continued

and the rest of the rear part of the entire aircraft was a light lime green to allow ready forming to green or red quarter. The lower part of the engine nacelles was a rich yellow-orange shade.

Three Hurricanes regularly flew, LF363, PZ865 and a Canadian civil machine which featured an unusual shaped spinner. LF751 was also used, as was Z7015. The Canadian machine for some time was coded MI-D:H3421. A shortage of Hurricanes led to some Me 109s being painted brown on top and acquiring MI codes, but they insufficiently resembled Hurricanes even for background shots and do not appear in the film. The real Spitfires include N3311:AI-N, N3322:AI-N, N3310:AI-A, N3317:AI-H and AI-S:N3329.

Despite a wide search, no Dornier was found and only one Ju 88 was available for filming. Two Ju 52s of the Spanish Air Force built, incidentally, in a back street in Barcelona, operated during the location work at Tablada. All of the aircraft flown in Britain were inspected by the Board of Trade and given limited flying clearances. They were licensed to fly on air tests, for air-to-air filming and to move locations. Sixteen Me 109s, led by a Heinkel 111, with the Mitchell in the rear, arrived at Duxford on May 15, 1968. It took formations some time to accustom themselves to the small area available for flying and a month's practice was needed before the formations were close enough to the Mitchell for filming . . . by which time the best summer weather had gone. Filming at Duxford did not end until late September. This was a costly experience and only twenty-eight days of filming took place in three months, so bad was the weather. For the Spanish pilots flying the Me 109s the bad weather was an irksome experience. In the busy sky of East Anglia the film company was allocated three lanes roughly pointing towards the east, to King's Lynn and to Bedford. Many of the battles were shot from the Alouette just north of Oakington, and soon there were hoary tales told of how unsuspecting pilots came across large formations of aircraft they never thought they would see again.

One of the problems to be solved is the fitting of an authentic sound track. Engine notes from the Spitfire II will doubtless be useful, but the rasping noise of the Mk IXs is most unrealistic. Coarse Mk IX sounds came from the Me 109s, whilst the Heinkels sounded like under-powered Lancasters. Some clever back and front projection has been done with the large Heinkel formations to make them 'fly' over London. To produce smoke, special dischargers were fitted to the Heinkels and some fighters. These were cylin-



Top: Me 109Es make a strafing run on an RAF airfield in France in May, 1940, while an immobilised Hurricane stands abandoned in the foreground. Centre: A pilot mounts his Spitfire, for a quick take-off while AA fire darkens the English sky. Above: Line-up of 'Me 109Es' with only the Merlin engines and propellers to strike a jarring note.

drical fittings placed close to the exhaust stacks—and very convincing were the smoke trails. Seven Spitfires repeatedly peeling off for the cameraman in the helicopter one afternoon was a sight to behold and treasure in this day and age. To hear again those Merlins, the whistle of the Spitfires, see the large formations and enjoy the plodding Mitchell with the sound that only a Mitchell could make, all these have been delights that seemed to be something from the past. There can be no doubt that this is a film we shall all enjoy tremendously, and that it will be one of the highlights for aircraft and modelling enthusiasts in 1969.



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Military Modelling

by

Chris
Ellis



T-34 ARV and A-20

THE recently introduced Airfix T-34 tank kit offers numerous conversion possibilities, and some of these have already been covered. This month I am dealing with two further variants of special interest.

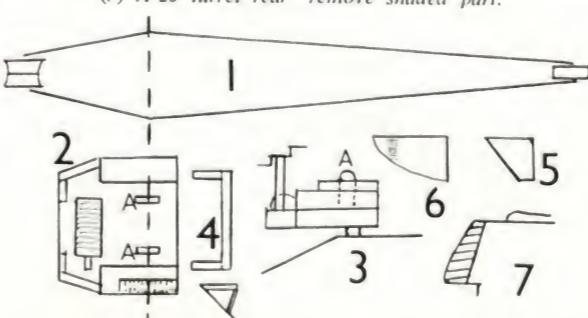
I have already described the simplest T-34 ARV variant—just a turreted towing vehicle. The more ambitious development of this came post-war, and was a T-34 hull fitted with a winch and slewing jib. In model form it is quite easy, even though it appears radically different from the basic kit. Start by assembling the complete chassis as in the Airfix instruction sheet, but omitting the long range fuel tanks from the hull sides. The turret is not needed.

First task is to cut a 20 mm × 24 mm rectangle of thin card or plastic card and cement it over the forward hull top, completely covering the turret aperture. Then cut a further small rectangle to fit between the small front extensions of the engine intake grilles, thus giving a completely blanked off top. Measure the dead centre of the plated in top (by drawing diagonals over it) and cement a 6 mm diameter disc of card or paper at this point to depict a hatch. A scrap of plastic card at the leading edge makes a hinge.

Now cut four rectangles of 20 thou plastic card, each 6 mm × 46 mm, to make the side stowage boxes for the hull track covers. These are cemented on each hull side, with end pieces (as in the drawing) and the arrangement can be seen clearly in the pictures. This completes the hull structure and work can commence on the jib and its platform. I made the platform up from scrap parts to match the drawing. In fact, I used bits of the steering tail chassis from a Mk I tank kit as the basis, but any other oddments will do. For the boxes on each side of the platform I used cut down stowage boxes from the kit. The winch was made from the ram of the Mk I tank steering tail and the various other fittings came from the Bloodhound kit, though you are bound to have other suitable bits and pieces to hand. Note that there is an upright arm with a handle for topping up the jib; I used heat-stretched sprue for the cranked handle as I could find no scrap parts thin enough.

The jib is made from plastic cocktail sticks bent and cemented to the shape shown. The cheap cocktail sticks sold in packets in chain stores are just the right length and size. A couple of spare Churchill wheels made the front sheaves on my model and an old locating stud served as the rear sheave. The crank in the jib arms is easily achieved by sawing half way through the cocktail

Below: Full-size drawings for the conversion parts. (1) Plan of jib platform (jib location dotted). (2) Plan of jib platform from side. (3) Jib platform from side. (4) Pivot plates. (5) Stowage box end. (6) A-20 front track cover shape. (7) A-20 turret rear—remove shaded part.



Top row, left: A-20 ready for painting. Note new turret rear and driver's visor. Right: T-34 ARV ready for painting. Plastic card parts in white. Above, left: Completed ARV model. Right: A-20 model less its tracks.

sticks at the necessary point, gently bending them, and securing with a spot of cement.

I made the whole jib and its platform 'solid' on my model, just cementing everything in place. You could make the platform swivel, and the jib swivel upwards if desired, but it would be rather fiddling and fragile, not worth while in my view. The platform is secured centrally by a spare locating stud or length of sprue in the position shown in the sketch, and the jib is then cemented to the platform on its two pivot plates.

On the hull rear there is a metal support to hold the projecting rear end of the jib, and this is made up of Microstrip and cemented as shown in the sketch. A spot of cement under the jib arms will make the whole structure secure at this point if you are making a non-working model. All that remains are two stays which hold the jib secure in the travelling position. These go from each side of the jib head and attach to the towing lugs on the glacis plate. I made these from heat-stretched sprue, each stay being 18 mm long. Anyone making a 'working' model should omit these. Though I do not know the method for sure, it seems that the jib could be 'topped up' horizontal and then pivoted via the platform to either right or left for lifting operations. Otherwise it remained rigid and the sheaves provided front and rear winching points as on the US M32 ARV.

This completes the model, but a few embellishments are in order. I added two spare T-34 wheels on the hull rear each side of the jib support and exhaust pipes, a dummy tarpaulin (from an Airfix 9F loco kit) on the left stowage box, and a dummy T-34 transmission casing on the right side. For a guide I used the picture of one of these which appears in the T-34 Profile. It can be made very simply from scrap parts. Other items you could add include picks, shovel, levers (though these were normally carried in the stowage boxes) and an 'unditching beam' from a matchstick. To give the 'sag' in the tracks, I pushed plastic card strips between the track covers and top run, as advocated before in these columns.

The second model is the T-34's predecessor, the A-20, which was the link between the BT series and the T-34 proper. This makes a most interesting conversion. Before assembly saw off the track covers from the hull top moulding to leave just a rudimentary lip along the edge of the hull. This is easily done by using the stowage box locating holes as a guide and sawing just inside them. Front ends of the track cover are then filed to shape as shown in the sketch and the angled front corner is also rounded off with a file. Also before assembly, remove the headlight locating mount and file and carve away the driver's visor plate. Then plug the fuel tank locating slots on the hull sides and smooth over. Also file off all the moulded hand rails.

Next take the chassis sides and carefully saw off the four leading road wheel axles, leaving the rear one intact and ignoring the sprocket and idler axles. Now refer back to the BT-5 drawing by Ken Jones on page 155 of the December, 1968, issue, and place the modified T-34 chassis sides against this, marking off three new axle positions on the chassis sides at identical spacing

Continued on page 276

ROMAN FRIENDS AND FOES

BY BOB O'BRIEN



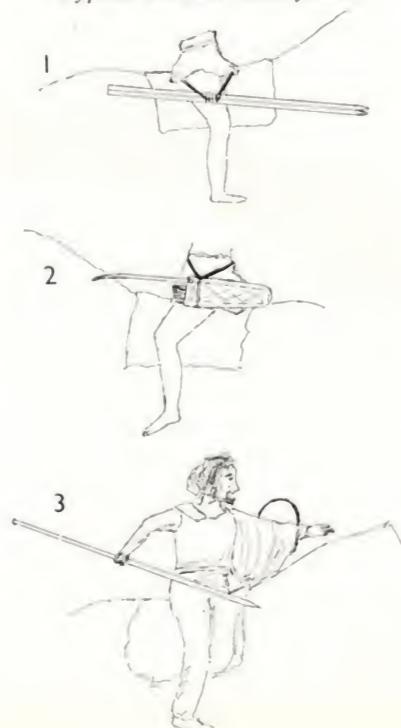
Part 5: Other Cavalry

SO far we have considered horsemen from the East of the Roman sphere of influence, the camel riders, Persian/Arab light horse and the armoured horse archers, all from the other end of the Mediterranean. In North Africa, Gaul, and Germany, however, were horsemen who fought both for and against the Romans throughout their long history.

Numidians

The Numidians lived in part of what we now call Algeria and Tunisia. Until they came under Roman sway they were an independent people ruled by their own kings for most of their history. They fought for Carthage against Rome, and later changed sides and joined the Romans, but their kings were too ambitious to leave things alone, and after choosing the wrong side (ie, against Julius Caesar) in the Civil Wars, they came completely under Roman jurisdiction, and afterwards many took service with the Roman armies as auxiliary light troops or light cavalry.

Below: Sketches show modifications to figures described in text. (1) Slung javelin. (2) Slung bow and quiver. (3) Typical German cavalryman.



Their light cavalry were some of the most skilful light horse in the history of warfare. They rode without stirrups or bridle, and used javelins, short bow and sword as their weapons. Proud, and generally undisciplined, they could do wonders under a commander they respected and admired (Hannibal was the great example) but under a lesser man they were just as likely to pack up and go home if they imagined they had been slighted or ignored. Their normal method of fighting was very like that of the American Indians of the Great Plains, and it is from the Airfix Red Indian set that most of the conversions are made.

Cavalry conversions

These can be shown in two basic forms, within which there are a number of variations: (1) using bow, with javelins slung at right side, and (2) using javelin, with bow carried in case,

or slung. In both variants, the bow case/quiver is shown on the left side or slung on back.

For those using a bow, the top half of the foot figure with a bow is cut off and attached to any of the lower halves of the riding Indians in the box. The usual length of pin should be used to hold the two body parts together, one end of the pin going right through the centre of the lower half of the body and into the horse. The slung javelins are represented by two headless pins about 16/18 mm long, tied together with fine thread, knotted and then taken around the figure's right leg and under the other leg. Glue into position so as to lie more or less horizontally at about the level of the lower right thigh (see sketch 1).

Cut off the original quiver from another foot archer, or make one up to the same size from scrap plastic sheet. The quiver from the rider 'top' that you are using should have been

Below: Sketches show modifications to figures described in text. (1) Slung javelin. (2) Slung bow and quiver. (3) Typical German cavalryman.

carefully cut away before assembly of the body parts. The spare quiver should then be tied or glued so as to sit on the left thigh, within easy reach.

For those riders with javelins, use the top half of a foot Indian throwing a javelin, and join it to one of the riders' lower halves; or use the rider with spear complete. Replace the plastic spears with pins as above. As there are many more of the foot figures than horsemen in the set, a number of lower halves of redundant Civil War artillery riders could be used instead, when the riders can be assumed to be wearing light trousers. The angle and attitude of the javelin can be varied almost indefinitely, so that a great variety of poses can be obtained, as befits irregular light cavalry. Quivers and cases can be added as above. A thin pin, with the head cut off should be pressed into the top of the quiver in each case so as to represent a bow in the case—the sketch will show this—and the part of the bow projecting should be about the same length as the quiver.

Light cloaks can be made up from Plasticine, or modelling paste. Try to get the effect of the cloak 'flowing' behind the rider, as these fellows would usually be in a fair hurry. Using a scrap of sprue on the end of a small soldering iron, carefully position it on the head of the figure so as to represent the effect of an Arab type headdress. Small round shields 5/6 mm diameter can be added if desired. Punch out of light plastic or card and glue high up on the left arm.

Painting these figures can be an interesting job, as in real life the Numidian liked to decorate his horse and himself, so if your hand is good put on gold or silver earrings, buckles, headbands and horse trappings. Cloaks and head coverings from light colours, yellows and white generally. Hair black, body and face 'coffee', but dark rather than light, while indicate if possible a line of white teeth showing in the face—very effective, even if you do have to get really close to see it. Horses are the standard Indian ones; paint in the blanket in any lightish colour. Trousers or loin cloths were white, grey, yellow or brown. Shields can be any desired colour.

German light cavalry

THE forest and swamps of the western part of Germany in this period did not encourage the breeding of large horses, and one finds that the

AIRFIX magazine



Above, left: Three Numidian cavalrymen, all converted from Airfix Red Indians as described in the text. **Above, right:** Two German cavalrymen (on left) and two Gaul cavalrymen all modified as suggested in text. **Below:** Sketches show four different (and typical) styles of headdress for Gaul cavalrymen. Helmet embellishments can be made from plastic scrap.

Germans were mainly foot warriors. Those who did fight on horseback had to make do with rather undersized horses, certainly not a match for the larger breeds from Gaul and Spain. There is an account of Caesar obtaining the services of some German cavalry in his campaign in Gaul and remounting them on horses from his own forces before they could hope to be effective against the Gauls. Nevertheless, the German cavalry, used in close co-operation with fast moving light infantry who moved with the horsemen, were not to be despised, and could be quite effective in the close terrain to which they were accustomed.

Conversions

The basis is the top half of any of a number of Robin Hood figures, on the bottom half of a US Cavalryman, mounted on either a Red Indian, or Cowboy horse. The Robin Hood types that can be used are the cloaked swordsman, the billman, the archer reaching behind him for an arrow, or the quarter staff man holding his staff across the body. In each case the original weapon is cut away, the figure is trimmed up, and then cut in half at the middle. The javelin or spear, 16/20 mm long, is pushed through the right hand and held with a touch of glue, with a round shield of from 6 to 8 mm diameter glued to the left arm. The top half is then pinned and glued through the lower half of the US Cavalryman into the horse as for the Numidian. Where a sword scabbard is shown on the original cavalryman this can be left, as all these warriors would use a sword as a secondary weapon. Cloaks can be added to as many of the figures as fancied. The swordsmen in cloak already looks the part, and can be positioned looking away to the left front, javelin at the ready.

Most of these men would be bare-headed, and so paint up with a fairly shaggy look, with beard and moustache, or no beard but a long, drooping moustache. Hair and whiskers are light browns, some reddish, only a few really dark. Clothes would be generally sober in colour, grey or brown trousers with brown, dark



in France, and in part of Asia Minor, in the part which came to be known as Galatia. Gaul itself was conquered and brought into the Roman Empire (as it was to become) by Julius Caesar, after a long campaign punctuated by his expeditions to Britain and by a number of uprisings amongst supposedly subdued Gaulish tribes.

The Gauls could never be regarded as a single nation, and it was the rivalry of tribe against tribe, and the rather mercurial nature of the Gaul fighting man, that helped Caesar in his conquest. Caesar himself greatly admired the fighting qualities of the Gauls, and the province of Gaul came to be a fruitful recruiting ground for the Roman armies, in particular the cavalry arm.

Cavalry conversions

The Gaul cavalryman would be of higher status than the foot soldier, and would be armed and armoured accordingly. In particular, he would normally wear body armour, either a cuirass or mail coat of bronze or iron, and would follow the fashion for bizarre helmet shape. These helmets could be winged or horned, or be surmounted by a variety of metal shapes, in addition to horns or wings. Some examples of these are shown in the sketches.

After a number of experiments, I found the best way to represent these horsemen was to take the Airfix US Cavalrymen and convert direct, the only major change being in the substitution in some cases of a suitable Robin Hood head for the US Cavalry one. In many cases the existing head can be used, building up the helmet with Plasticine. Cartridge belts should be shaved down or burnt down with a soldering iron on the front of the figure so that as smooth a surface as possible can be left to represent the armour. Alternatively, the surface can be indented at close and regular intervals with a pin which has had the point cut off, so as to represent the scale or mail armour sometimes used. A Plasticine cloak should be added, and any horns, wings, etc, can be made from scrap plastic pressed into the

Continued on next page

Romans—continued

Plasticine helmet. All Plasticine parts should be given a coat of banana oil or other thin varnish to set the material.

Shields can be of most shapes, and quite large; the examples have, in one case, a shield made from plastic sheet 10 mm long by 6/7 mm wide with slightly curved ends, fixed to the figure by a short pin, the head of which forms the shield boss. I made another shield from a small drawing pin, shortened and repointed to drive into the plastic of the model. Weapons can be a spear of 20 gauge wire about 30 mm long, or a shorter length to depict a javelin. The original sword scabbards can be left on the figures, or can be cut off and positioned on the right side—there seemed to be no set way of carrying the sword, and this was no doubt slung according to the fancy of individual warriors.

The Gauls would have mainly bright colours, yellows and reds, for their clothing, but trousers would be generally grey or shades of brown. Cloaks were grey, brown, red or blue and horse trappings and harness often richly ornamented. Helmets and armour are in either bronze or iron finish. Remember when representing iron finish, do not use silver or aluminium paint, but a mixture of one or the other of these paints with matt black or blue, to dull the bright metal colour down. Metallic bronze finish can be used direct, but can be shaded a little with a touch of dark grey.

Plasticine 'hair' should be added, as the Gauls habitually wore their hair long, and went in for clean-shaven chins but a variety of long drooping moustaches.

In conclusion, I should state that this piece was written before I had had the opportunity to see the Airfix Ancient Britons, which is the reason that no mention has been made of conversions to make Gaul infantry. I imagine that there will be figures in the Ancient Briton set which can be adapted to Gaul foot soldiers with very little alteration.

In last month's 'Roman Friends and Foes' instalment, the drawings of ancient artillery equipment were, in fact, reproduced half-size for 4 mm scale models. Thus anyone working from the drawings should double all dimensions to arrive at models precisely scaled for Airfix figure conversions. Our apologies for omitting to mention this last month.

Also last month, two lines at the top of the right hand column on page 213 intruded by accident. Delete these two lines when reading the article to make sense of the text at this point!



Part 1: Standing Rigging

IN their range of classic historical ships, Airfix now include six of the most interesting ships in sea history—*Revenge* (1577), *Royal Sovereign* (1635), *Prince* (1670), *Endeavour* (1764), *Victory* (1765) and *Cutty Sark* (1869). The research for these models has been pretty thorough and, while the suggested colouring is occasionally suspect, the form of the hulls, masts and yards at least are accurate enough to satisfy all but the most dedicated purist.

Not so the rigging, however, which is capable of considerable detailing on each of these models. In each case, the diagram provided with the kit shows a simplified representation of the rig for the period, but errors have crept in occasionally and short cuts such as preformed ratlines are used. In this series of articles, therefore, I propose to begin with the basic principles of rigging, to go on to ways of improving detail accuracy in general, and then to cover detailing the rig of each Airfix ship in the range above in date order.

Much of this extra detailing will be within the capabilities even of the beginner with his first kit, some will be of use to modellers with some experience, while the more esoteric details might only be attempted by very few. But all rigging improvements, no matter how simple, call for two things—care and patience. Armed with these, plus the right materials and a knowledge of rigging principles, there is no reason why even a beginner cannot turn out a showcase model.

Materials Although cotton is often mentioned on instruction sheets, it stretches and sags after a time if under tension. Linen or silk thread are much better, dyed if necessary. Some modellers use nylon thread, which also does not sag, but it is very difficult to tie unless you use the special 'nylon fishline knot' which not only takes quite a bit of learning, but looks far too bulky in the scale of most sailing ship models. But for large diameter ropes, which were seized rather than knotted (such as the fore, main and Mizzen stays on most ships before the advent of steel wire rope), I find that fine 3-strand nylon fishing line—dyed as necessary—is very effective provided the ends are heat-sealed to stop unravelling.

Each mast is supported sideways by shrouds (A) which lead to deadeyes (B)

too heavy for anything smaller than very large-scale models. Carpet thread is a good material for heavy ropes, being much thicker than the household variety, and even ordinary sewing thread comes in various thicknesses, so it is worth searching for what you need.

Tools Although one rigging expert I know uses surgical forceps, the simplest tools are quite sufficient. Mine are only two pairs of tweezers, a dozen fine needles (mostly 'beading needles' in sizes 10 and 12) and a sharp craft knife.

Scale This is a thorny problem. Except for some large Revell kits, very few makers ever indicate the scale of their sailing ships. They always seem to aim at producing a model at a given size, and then scale down the plans to fit. The results give just about every size and scale from the Revell 1:96 series which make up some 36 inches long, down to about 1:300, producing models in the 10 to 12 inch range overall. The only simple scale in the Airfix series, for example, is the *Endeavour*, which is an exact 1:120, or 10 feet to the inch.

It is often more important, therefore, to get a scale effect rather than to keep exactly to scale. For example, the 3 inch

SAILPLAN by N. C. L. Hackney is a new series intended as a complete guide, from first principles onwards, for those many enthusiasts working on large scale plastic sailing ship kits. Owing to the pressure of space—we always have many more articles on hand than there are pages for in any one issue—we cannot guarantee the appearance of **SAILPLAN** monthly. Further articles will appear as frequently as possible, however. Since building sailing ship kits takes longer than any other sort of kit, we hope to give enough ideas in each article to keep ship builders occupied until the next appears.—Editor.

rope commonly used for sail cordage would be only about 0.01 inches thick at 1:96 scale, and even less at smaller scales. (Rope sizes always quote circumference measurement, and the thickness is only one-third of this.) But it is important to keep the proper proportion between different ropes in the rig, and the most common proportion in those sailing ships which used rope cordage was 10:6:3:2 for mainstay, main shrouds, Mizzen shrouds and sail ropes respectively. Keeping to proportions like these will produce a showcase effect even if the ropes are not exactly to scale.

In the paragraphs above I have used several names for ropes which may not be familiar to some aspiring ship modellers, but this next section and later articles are designed to explain the technical terms with diagrams as we go along.

Standing rigging This supports the masts and is not movable. It was usually coated with tar to protect it from the elements, and black thread should therefore be used for it. Fig 1 shows a three-mast of about 1600 with its standing rigging in place, but the basic principles apply equally to an Elizabethan galleon or to a full-rigged 19th century clipper. Each mast is supported sideways by shrouds (A) which lead to deadeyes (B)

Note: Foretopmast and maintopmast shrouds, deadeyes, and ratlines have been omitted for clarity, and the starboard shrouds are shown by dotted lines only for simplicity. They are identical to the port shrouds which are drawn in full.

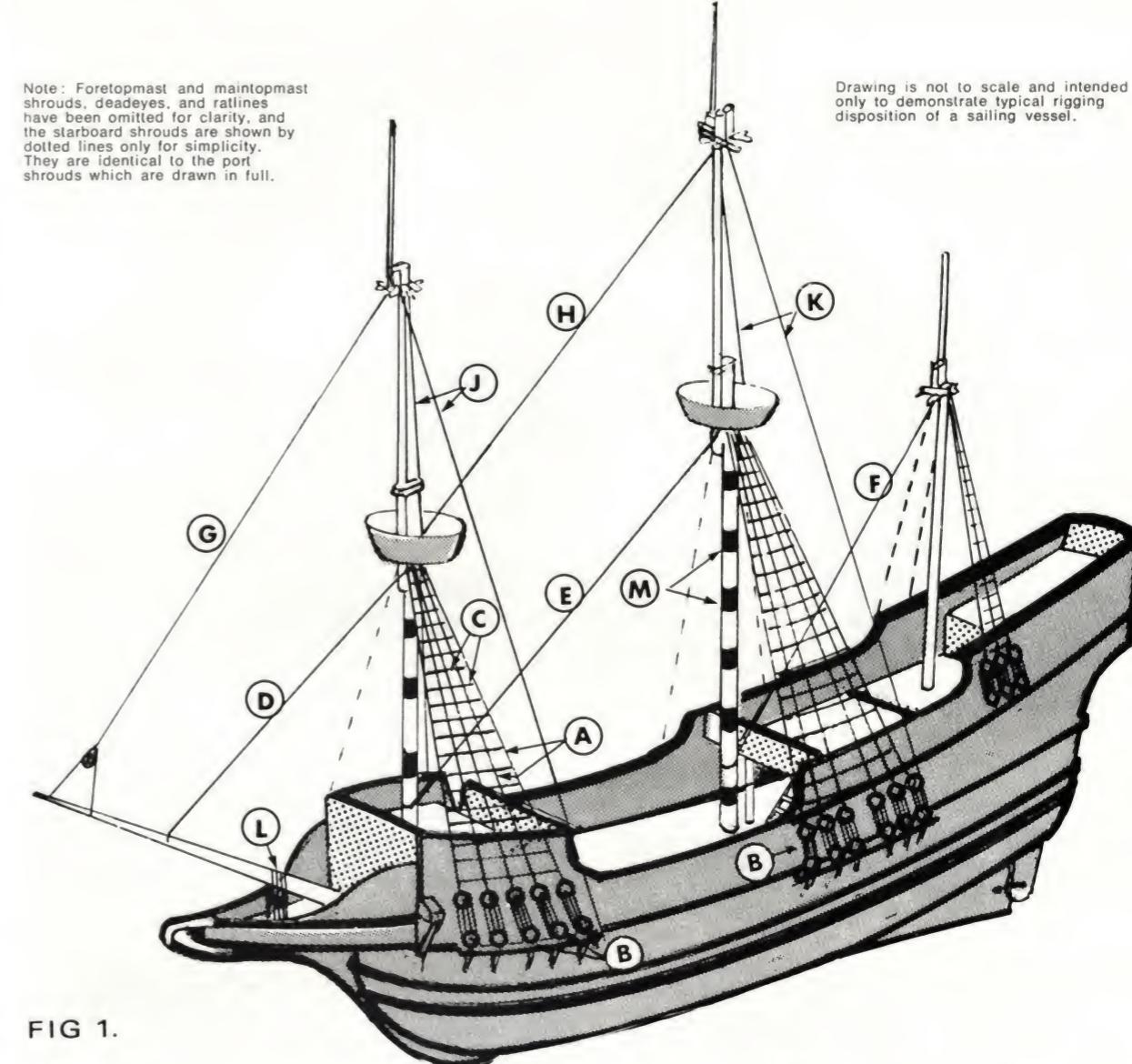


FIG 1.

Key

(A)	Shrouds	(E)	Mainstay
(B)	Deadeyes	(F)	Mizzenstay
(C)	Ratlines	(G)	Foretopmast stay
(D)	Forestay	(H)	Maintopmast stay
		(J)	Foretopmast Backstays
		(K)	Maintopmast Backstays
		(L)	Gammoning
		(M)	Mast Bandings

by which they are tightened. Across each 'gang' of shrouds run ratlines (C) of thinner rope, forming a ladder. (In many kits 'preformed ratlines' are included, which are actually the shrouds and ratlines combined. These are made by laying threads over formers to cross each other and then coating the lot with plastic. Later articles will cover both these pre-formed ratlines and the correct full-size practice.)

Supporting stays run forward and down from the top of each mast to a securing point lower down on the mast ahead of

it, and these are known by the name of the mast whose head they secure. Thus we have the forestay (D), mainstay (E), Mizzen stay (F), foretopmast stay (G) and maintopmast stay (H). To complete its supports, each mast, except the lowest, has one or more backstays on each side running from its head to securing points near the rails, shown as the foretopmast backstays (J) and maintopmast backstays (K). Two sets of lashings are also shown in the diagram. Holding the bowsprit down to the beakhead is the gammoning (L)—invariably used until superseded by

Drawing is not to scale and intended only to demonstrate typical rigging disposition of a sailing vessel.

the bobstay about 1690—while both fore and main masts show rope banding (M) at intervals, which was universal on all built-up wooden masts. These were usually the fore and main lower, the uppermasts and the Mizzen being single poles.

Following this brief explanation of the standing rigging, Part 2 will deal with the working ropes of the ship, known as the running rigging. Keep this first instalment and the drawing, and familiarise yourself with the terms as subsequent articles will refer back to this one.

photo PAGE

More rare pictures from readers with captions by Michael J. F. Bowyer. A free Airfix kit is awarded for every picture published, but please note that there is usually a delay of some months before publication due to the limited space at our disposal.



3



1



2

Key: (1) S. J. Searly sent us this fine view of Fairey Seafox K8587 coming alongside the cruiser HMS Arethusa for recovery on May 10, 1939. Aircraft is silver overall with usual style of roundels and serials. (2) Fairey Battle target tug R3964, date and unit unknown, in standard black/yellow overall striping. Picture by Leslie Johnson.



5



4

Key: (3) M. Pegg sent this picture of a Royal Navy Fairey IIIF floatplane, S1858, date and unit unknown, in standard pre-war FAA finish. (4) From F. Radcliffe comes this view of Air Vice-Marshal Medhurst's polished natural metal Dakota, KN327, at Heliopolis in 1945. Note AVM flag on nose.



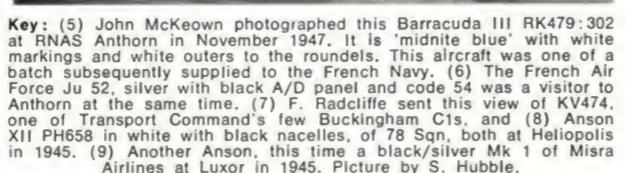
7



6



8



9



10



Key: (10) Another picture at Heliopolis in 1945 shows a Spitfire V in silver finish with black cowling panels and C type roundels. Serial: BR416.



11

Key: (11) Avenger KE443:068/FD from the Trials Unit at Ford, crashed on the flight deck of HMS Illustrious in November 1948. Finished in dirty 'midnite blue', this was an ex-Lease-Lend machine. Picture by J. Bowder.



11

NEW KITS AND MODELS

OTAKI PUMA

NEW name to us in the kit field is Otaki, whose first release is a 1:35 scale kit of the German Sd Kfz 234/2 Puma armoured car. At first sight this looked a crude kit, but first appearances can be deceptive and once completed, the Otaki Puma proved a good looker, well up to the standards set by Tamiya, though lacking the sophisticated finish of the latest Tamiya models. Assembly is



quite simple with well-illustrated instructions, even though they are in Japanese only. The engine control switch is disguised as a brake lever in the driver's position and the gear train comes ready assembled. Nitto themselves do not quote a scale for the model, but we estimate it to be about 1:20. This might restrict the appeal of an otherwise good kit—many more would have been sold if the kit was to 1:35, despite the diminutive size of this vehicle.

Our sample was supplied by BMW Models Ltd, 329 Haydons Road, London SW19. Price is 30s 9d. *C.O.E.*

HUMBROL PAINT SETS

FROM Humbrol come useful accessories for any modeller in the form of tinlet palettes, designed to hold standard $\frac{1}{2}$ oz Humbrol paint tins. Basically the palette is a strong plastic holder to accommodate 18 tinlets, with space between the tins for brushes. Three sets are produced (complete with paints) all complementary to each other. The three will stack together to form a complete storage unit, or any one can be used individually. The three sets available are No 1, with 18 gloss colours, a lid, and brush; No 2, as No 1 but without the lid; No 3 with 12 matt colours and brush. In the latter set, the six unused spaces can be used to hold further tinlets. Prices are 28s (No 1), 26s (No 2), and 20s (No 3). For the average aircraft or tank modeller, No 3 set is the most useful as supplied. However, the basic holder accommodates any desired combination of paints. *C.O.E.*

NEW FROG KITS

THREE new aircraft kits from Frog are all based on kits already produced by Hasegawa, but like the Lightning and Sabre, reviewed last month, they are boxed and presented in the usual Frog style complete with colour scheme drawings.

Summing up, this is a worthwhile and nicely produced addition to the range of military kits available in 1:35 scale. Our sample was provided by Jones Bros, 56 Turnham Green Terrace, London W4, who hold stocks. Price is 19s 11d. *C.O.E.*

NITTO WEASEL

ANOTHER new military kit, this time from Nitto, depicts the M-29 Weasel amphibian, and is a most accurate model with very clean mouldings and an ingenious design which manages to 'hide' both the Mabuchi motor which drives it, and the batteries, under the rear and front deckings respectively. Assembly is

sample had rather a lot of flash on the sprue which included the undercarriage. There is a full range of optional offensive loads, and the model is very impressive, certainly eclipsing the old Revell kit of this machine as first choice for the collector. Optional transfers and colouring details are given for a camouflaged Thailand-based aircraft or a silver Okinawa-based machine. Price of the kit is 6s 9d.

Lastly, a giant of a kit in the shape of the G8N1 Rita. Hasegawa's kit came out



last year, but as produced by Frog it comes at something like half the price in Britain. The kit is nicely detailed and straightforward to assemble, though the engine nacelles were none too good a fit on our sample, necessitating a little filling. With a tricycle undercarriage set well back, this model needs more than the usual amount of nose weighting if you want it to balance.

Optional Japanese and USAAF markings (the latter for a captured machine) are provided, and the kit costs 22s 6d.

All our samples were provided by Jones Bros, 56 Turnham Green Terrace, London W4, who hold stocks. *C.O.E.*

FROM BELLONA

LATEST accessories for wargamers and military modellers in the Bellona range are sets of long stone walls and wargame bridges respectively.

The long stone walls each measure nearly 10 inches and there are three of these on the base supplied in the set. These can be cut from the base with scissors and sited as required. Since the walls are to OO size, they would be useful for railway modellers as well as wargamers. Price of the set is 3s 4d. The wargames bridge set consists of three items on a common base, from which they can be cut with scissors. There is a complete bridge, a duplicate of the same bridge after bombing or shell fire, and a planked section for spanning the gaps in the damaged bridge. The idea is, of course, that the damaged bridge can be substituted for the original in the course of a wargame when the bridge is considered destroyed. Modellers who go in for dioramas could use both bridges in differ-

Continued on next page

New Kits—continued

ent places on the same layout. moulded in brown PVC, the wargames bridge set costs 3s 4d. Our samples came from Bellona, Hawthorn Hill, Bracknell, Berks, who can supply direct, postage extra.

Also new from Bellona is Series 17 in their military drawings series. In the usual booklet format, punched ready for adding to the Bellona binder, this latest issue gives 1:76 scale drawings for the British Cruiser Mk I tank (A9), the US M26 Pershing, the US M2A1 Medium tank, and the German Pz Kw II Model F tank. Pictures, data and historical details on each vehicle are also featured, and the rear cover includes details and pictures and drawings of the US 90 mm gun and US machine guns in tank mountings. Priced at 4s, excluding UK postage (1s 9d extra overseas), this latest Bellona issue offers the usual useful material for tank modellers.

C.O.E.

TWO FROM HELLER

HELLER continue to produce their Musée series, much to the delight of 1:72 scale model aircraft fans specialising in World War 2 types.

The latest two to be released are the Caudron 714 and the Mureaux 117. Both are little-known aircraft.



We built the Mureaux as a sample of the two kits and found it to be an excellent, rather straightforward job which, if one takes care, will produce a good likeness to the parasol winged observation aircraft. The construction is a little on the heavy side but this was the feeling given about this aircraft in real life. Other details such as the nose radiator grille and the cockpit transparencies are first rate.

On the debit side, the wing should have

had slight dihedral and there were no locating stubs on the tailplane, which made this item rather difficult to fix.

Although we have not yet completed the construction of the Caudron 714, it is possible to see from a dry run that this model is again an accurate representation of the full-sized aircraft. The cockpit cover is a little difficult to fit and needs easing into position.

Both kits cost 9s, and our review samples were supplied by Modeltoys of Portsmouth, who hold stocks.

NEW TRANSFERS

ALMARKS have now sent us samples of several new additions to their growing and inexpensive range of transfers for aircraft and military modellers. Sheet T7 consists of a vast selection of white US Army and Allied invasion stars in all styles and sizes both with and without the white surrounding ring. Also included are white and yellow turret stripes. Sheet T8 is almost a companion sheet since it features a generous mass of US ARMY, MARINES, and AIR FORCE lettering and US Army dept numbers in white and yellow which can be cut up as necessary and applied to tank models. Both these sheets are invaluable for tank modellers, and both are suitable for 1:76/1:86 scale tanks.

Sheet A6 consists entirely of dull red RAF code letters in various styles, $\frac{1}{16}$ inches deep, for use on appropriate RAF types like Beaufighters, Defiants, and Mosquitos. Definitely a 'must' for aircraft modellers this. Finally, sheet A11 features German World War 1 crosses in all styles used in 1914-18. Each of these Almarks sheets costs 3s and they are available from many model shops. If unobtainable locally, they can be had by post from BMW, Modeltoys, Berwick, or Jones Bros, among others, postage extra.

From Mabex, 31 Pevensey Road, Eastbourne, Sussex, we've had their latest transfer releases. These include a new series of markings for 4 mm scale (OO) tram models which feature fleet names in gold (6d per pair) in 12 different names for use in any desired combination—eg. 'Corporation Transport', 'Corporation



the spatted undercarriage.

In the main the kit fitted well together but we found difficulty in getting the two halves of the engine cowling to lie snugly round the engine itself. There had to be a little judicious carving down of the cylinders to get an accurate fit. Similarly, there was a certain amount of flash on various parts. Our sample was supplied by Modeltoys of Portsmouth, who hold stocks.

A.W.H.

Military Modelling — from page 269

to that on the BT-5. You can do this with a pencil.

Three of the four axles previously sawn off each chassis side are now cemented back at the new spacings, and the fourth axle is discarded. The complete hull and chassis is now assembled as in the instruction sheet, complete with the wheels on the re-spaced axles. You get four wheel halves redundant now, and they can go on the ARV conversion if desired. To complete the hull, add a new 6 mm \times 4 mm driver's visor from card with a single vision block from scrap, mount the headlight between the visor plate and the hull machine gun, and trim off the hooked parts from the front towing lugs, leaving just stumps. Incidentally, the visor is lined up with its top on the top line of the original moulded visor. One last task is to trim the armour shield from around the hull machine gun moulding.

For the A-20 turret, make up the small (76 mm gun) turret from the kit, but saw off the gun barrel and the projecting housing. This will leave just the mantlet to be held in position by the

turret halves. When the turret is assembled and set, the rear end is sawn off completely (see sketch) and a flat section of 30 thou plastic card cemented in its place. When this is dry, trim it and file it at the edges to give rounded corners and top. Next, file and sand down the turret sides until they are flush with the turret ring moulding, so eradicating the prominent 'lip' on the basic turret where turret sides and ring meet. The turret is thick enough at this point for all the filing required. Finally, add a second horn periscope on the turret roof, from plastic scrap, and make up a 45 mm gun and machine gun from scrap, working from the BT-7 turret drawing in the December, 1968, issue. However, as the A-20 had an internal mantlet, the gun and machine gun should be made shorter by 2 mm at the turret end.

Finally add the tracks, reducing the T-34 tracks to match those in the BT-5 drawing by cutting away a strip at each side. The A-20, of course, had BT type suspension and mechanical components, but featured a new hull.

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HAWK

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Letters to the Editor

Beaufighter colours

I WOULD like to comment upon Michael Bowyer's reply to the interesting correspondent, Mr Alex Tough, in the November issue of AIRFIX magazine.

Particularly I would comment on the question of Beaufighters wearing grey/green top with white side, tail, and undersurfaces which was common on 'Beaus' I observed at Chivenor in summer, 1942.

Unfortunately, codes and serials noted at the time have been mislaid. But on many occasions during the summer of that period all of Chivenor's Beaufighters were white as described and used on regular hunts to the Bay of Biscay and elsewhere as the situation demanded.

Also their escapades were undertaken in company with identical colour schemes with Wellingtons and Whitleys, the latter, of course, Merlin powered.

It may also be of interest for me to relate my memory from Chivenor of the 1938-39 summer period where extensive night flying was undertaken with Blenheim IVs and Beauforts which, if my memory serves me rightly, had dark green/dark earth upper-surfaces and all black under-surfaces.

I hope these incidents I relate may be of some interest to enthusiasts in general and possibly to Michael Bowyer in particular, whose fund of knowledge he has acquired over the years never fails to fascinate me.

Robert H. Ballard, Chelmsford, Essex.

Realistic tyres

I CONSIDER that the appearance of many plastic models would be improved by greater attention to the painting of tyres. Many of us are content to paint our tyres in the colour or shade which we think they are, rather than by observation of the actual colours. The tyres of aircraft models, for example, are often painted matt black overall, although this shade would not be authentic, except, perhaps, in the case of a new aircraft (or an 'old' aircraft with new tyres!). The use of very dark grey paint or the recently introduced 'tyre black' paint produce some improvement, but a much more realistic appearance may be achieved by a combination of shades or colours. Only rarely is a tyre uniform in shade, the walls usually differing from the tread of the tyre, and these differences may often be discerned by careful observation of photographs. In the case of most aircraft tyres, a realistic effect may be obtained by painting the walls of the tyres matt black and the treads dark grey, whereas in the case of aircraft operating from muddy airfields, a 'mud' finish (eg, Humbrol 'Track Colour') may be substituted for matt black on the tyre walls. The tyres of military vehicles, etc, may be painted similarly.

I found Roger Levy's Lightning F6 conversion article in the December issue most interesting. The Red Top missiles, incidentally, are pale grey with gunmetal nose and white body and tail fins.

May I be permitted to point out a

Letters to the Editor selected for publication entitle the senders to each receive a free Airfix plastic construction kit of their choice. We are always pleased to receive your comments and pictures, which will be considered for publication. Submitted material and pictures can only be returned if accompanied by a stamped addressed envelope, and the Editor cannot accept responsibility for safe keeping of any such contributions, neither does he necessarily agree with comments expressed by correspondents in the letters columns. Please note that any letters anticipating a reply MUST be accompanied by a SAE or stamp.

small error in the Lightning F6 drawing? No 11 Squadron nose markings are yellow diamonds superimposed on black rectangles and not vice versa as shown. This fact, however, will have been apparent to most modellers from the excellent photographs of the conversion and the full-size subject which were included in the article.

James Trodden, Billingham, Tees-side.

Centurion details

I ALWAYS read with interest AIRFIX magazine. I especially find the section on military modelling very interesting and hope that eventually a Photopage will be devoted to these.

In 1950 the Centurions of the 7th Armoured Division in Germany on delivery from the ordnance units were coated with glue, and sawdust was sprinkled all over; this gave a rough finish and this was either sprayed or brush painted with matt khaki.

In your magazine of last December, you depict a Centurion III of 5 RTR with an extra exterior petrol tank at the rear. In fact the majority of the Centurions of the 7th Armoured Division were fitted with these. They were installed simply to enable the tank to proceed on this to the 'war zone', then the main petrol supply was switched on from the inside of the tank and the exterior tank jettisoned again from inside the hull. Also all the Centurions during this period had a spare road wheel mounted on the front of the tank in place of one of the sets of spare track shoes. They also had a fold down windscreen in front of the driver. Some models were fitted with a

Below : Danish reader Axel Duckert sent us this view of his Russian Front diorama in a most realistic muddy setting. The PzKw IV and the two variants of Opel standard truck are all scratch-built from Bellona drawings, as is the Sd Kfz 251 half-track parked at the roadside. German soldiers are converted from the Airfix 1914 set.



detachable windscreen complete with attached canvas hood and windscreen wiper to enable the driver to have complete protection from the weather whilst driving in the 'open position'. These were kept in a stowage box to the left of the driving hatch.

At the rear of the tank behind the turret were stowed the blankets, sleeping bags, etc. These were laid flat and covered by the bivouac on top of the engine covers. This, especially in winter, kept the crews' bedding dry and warm. Quite often, whilst parked for the night, instead of pitching the tent at the side of the tank, the turret was traversed to the rear and the tent was thrown over the gun which was then elevated till the canvas was taut enough for the crew to sleep under it and have the warmth of the engine covers.

Camouflage was effected in numerous ways, mainly by tying foliage along the gun barrel and turret with lacing wire or spare electric cable. One of the main problems when stationary was the inside of the tracks, these became like glass with the constant running against the rubber-tyred road wheels. This was mainly overcome by shovelling dirt on them. Also, another tip for wargamers is that quite a few Centurions, after encountering obstacles including trees, lost their 'bazooka plates' (side wheel covers), some just a front one, others the lot. Going from memory, I think these were only secured by bolts which soon sheared.

W. Coram, Suva, Fiji.

Corgi tyres

IN the August, 1968, edition of AIRFIX magazine, I noticed a letter by Nigel Varsity on improving traction of Airfix slot-racing Mini-Coopers by using the rear tyres from the Corgi Cooper-Maserati. I tried this out with tyres from a Corgi Batmobile, shortly after its release. I have since experimented and fitted them to the front wheels of a Mini. These instructions apply to the 'old type' Mini-Cooper with double-pin steering.

The process involves removing the rear guide pin and sticking the track rod to the part immediately above it, thus doing

Above : Following recent correspondence (November, 1968) on the 'Ben Ledi' class cargo ships, Lieut-Cmdr E. C. Talbot-Booth, RNR, the well-known authority on merchant ships, sent us these scale drawings to show the differences between the vessels as an aid to anyone converting the kit. Ben Ledi is shown right, while the other drawing illustrates Benalbanach and Benwyvis.

away with steering as the wheels cannot turn without hitting the wheel arches. Then stick the tyres to the wheels and leave them to dry. Had the rear guide pin not been removed, the car would be unable to 'spin out' on the bends.

Alan Smith, Bromley, Kent.

Cleaning models

MOДЕЛЛERS who have seen my collection of plastic ships have marvelled at their cleanliness, even though many of the models are five to ten years old. The answer is so simple and yet it never fails to surprise.

I merely put the ships in an empty bath, connect a hand-held hair washing spray to the taps and let the resulting deluge go over the whole boat, sails, rigging, decks and all.

This method is quite enough to disperse the extra 'rigging' made by cobwebs and any accumulated surface dust. For extra whiteness on sails, brush them over with your favourite detergent mixed with a little hot water.

After washing, the hull can be drained off by tilting one way and the other and then the model can be left to drip-dry for a couple of hours. If the rigging is of cotton you will find that it sags under the influence of water but it will taunt up on drying and may look better than before the wash.

A word of warning: do put the plug in the bath before operations commence in case any small components happen to come adrift; don't use too hard a spray of water and keep it tepid; don't wash your boats if fish-glue has been used on the rigging.

My aircraft are laundered in much the same way but in a bowl of warm water to which some washing-up liquid has been added. Holding the model in a convenient spot, it can be dunked into the bowl and very gently swished from side to side. A quick dip is all that is necessary to bring the finish up sparkling and good as new.

Gordon Stevens, Earlswood, Surrey.

Beaufighter V

FURTHER to Alan Hall's on the Beaufighter II in the November issue, a simple but very pleasing variation on this theme is the Beaufighter V. This was basically a projected version of the Beaufighter with the standard armament replaced by a four-gun Boulton-Paul turret placed just aft of the cockpit. Only two prototypes, R2274 and R2306 (both based on Beaufighter IIs), were built, as it was found that the turret drastically reduced the Beaufighter's performance.

The kit should be converted as described in the article for Beaufighter II R2402, except that the following points should be observed:

(1) The observer's position should be filled in flush with the surface of the plastic, using balsa or body putty. This should be finished with a mixture of clear dope and talcum.

(2) A hole large enough to accommodate the Boulton-Paul turret from the



February, 1969

brush (say size 6) is cut down and the paint stippled with a dry brush.

Done carefully, this can be extremely effective, especially if door outlines, window surrounds, etc, are treated in a slightly darker mixture with a small paint brush.

D. W. Dowling, London SW4.

Car carpets

READERS of AIRFIX magazine may be interested to learn of my method of depicting carpets in cars. Firstly, cut a piece of nylon stocking large enough to cover the area being carpeted, with a good overlap. Then glue it to the floor and paint it the desired colour. Finally, trim down the edges and put in all the details. The overlap allows for the 'carpet' to be pushed into any corners. My most recent model using this method is a Mercedes 280 SL which, in my opinion, is one of the best Airfix kits on the market.

N. S. Beeson, Cowbridge, Glam.

AFV markings

CONGRATULATIONS to Peter Hodges; his article on Armoured Division Markings fills up many gaps in this long neglected subject.

On wheeled vehicles the rear face of the differential casing was painted white and the unit number superimposed in black—the whole being illuminated for convoy station keeping at night. Unfortunately, this was invariably obscured by mud! Post-war vehicles carry the unit number on a 9 inch diameter white illuminated disc.

'Arm of Service' signs, which are not generally available from kit transfer sets, can be made from sheets of 'chequerboard' transfers, obtainable at most model shops. One sheet should last a lifetime.

J. B. Church, Lymington, Hants.

Natural metal

READERS may like to know of a very good product for producing a 'natural metal' finish on aircraft, etc. This is Vesta aluminium paint, made by Walpamur. It is available in $\frac{1}{2}$ pint and $\frac{1}{4}$ pint tins at about 2s 9d and 4s 6d respectively. Unlike ordinary silver paint it does not blacken or tarnish with age, and does not obscure fine detail. I have a B-29 model finished with ordinary silver model paint and a B-17 painted with Vesta aluminium paint, and the difference is remarkable.

F. I. Danby, Newcastle, Staffs.

Exhaust stains

HAVING tried the many ideas published on making aircraft exhaust stains, I have found a way to make them look most realistic when using matt colours.

With a black fibre or felt-tipped pen draw a line half the length of the desired patch, then, with a finger firmly rub the mark towards the rear of the aircraft. The exhaust stain then appears in the correct tone.

Christopher Davies, Westcliff-on-Sea, Essex.

279

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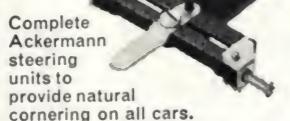
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